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THE ABRIDGMENT.

MESSAGE

FROM THE

PRESIDENT OF THE UNITED STATES

TO THE

TWO HOUSES OF CONGRESS

AT THE BEGINNING OF THE

THIRD SESSION OF THE FIFTY-FIFTH CONGRESS,

WITH THE

REPORTS OF THE HEADS OF DEPARTMENTS

AND

SELECTIONS FROM ACCOMPANYING DOCUMENTS.

VOLUME I.

EDITED BY

CLERK OF JOINT COMMITTEE ON PRINTING.

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NOTE.

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This work has been edited in a somewhat different manner from the preceding abridgments, but the general character and purpose of the book remain essentially the same.

MARCH 22, 1899.

CONTENTS OF VOL. I.

	Page.
MESSAGE OF THE PRESIDENT.....	5-51
REPORT OF THE SECRETARY OF THE TREASURY.....	53-136
Tables accompanying the Report of Secretary of the Treasury.....	137-188
Treasurer.....	189-200
Director of the Mint.....	211-220
Comptroller of the Currency.....	201-202
Commissioner of Internal Revenue.....	203-210
Register of the Treasury.....	220-225
Auditor for the Treasury.....	226-227
Auditor for the Navy Department.....	236-245
REPORT OF THE SECRETARY OF WAR.....	247-445
Major-General.....	258-285
Major-General Merritt.....	286-295
Major-General Shafter.....	295-308
Adjutant-General.....	371-378
Inspector-General.....	378-383
Judge-Advocate-General.....	383-384
Quartermaster-General.....	384-398, 446-512
Commissary-General of Subsistence.....	399-401, 513-557
Surgeon-General.....	401-413, 557-745
Paymaster-General.....	413-416, 745-746
Engineer Department.....	416-424
Chief Signal Officer.....	430-435, 746-839
Chief of Record and Pension Office.....	435-438
Board of Publication of War Records.....	438
Commissioners of the Soldiers' Homes.....	369
Superintendent of Military Academy.....	370-371
Board of Ordnance and Fortification.....	368-369, 424-430, 839-900



MESSAGE.

To the Senate and House of Representatives:

Notwithstanding the added burdens rendered necessary by the war our people rejoice in a very satisfactory and steadily increasing degree of prosperity evidenced by the largest volume of business ever recorded. Manufacture has been productive, agricultural pursuits have yielded abundant returns, labor in all fields of industry is better rewarded, revenue legislation passed by the present Congress has increased the Treasury's receipts to the amount estimated by its authors; the finances of the Government have been successfully administered and its credit advanced to the first rank; while its currency has been maintained at the world's highest standard. Military service under a common flag and for a righteous cause has strengthened the National spirit and served to cement more closely than ever the fraternal bonds between every section of the country.

A review of the relation of the United States to other powers, always appropriate, is this year of primary importance in view of the momentous issues which have arisen, demanding in one instance the ultimate determination by arms and involving far-reaching consequences which will require the earnest attention of the Congress.

In my last annual message very full consideration was given to the question of the duty of the Government of the United States toward Spain and the Cuban insurrection as being by far the most important problem with which we were then called upon to deal. The considerations then advanced, and the exposition of the views therein expressed, disclosed my sense of the extreme gravity of the situation. Setting aside, as logically unfounded or practically inadmissible, the recognition of the Cuban insurgents as belligerents, the recognition of the independence of Cuba, neutral intervention to end the war by imposing a rational compromise between the contestants, intervention in favor of one or the other party, and forcible annexation of the Island, I concluded it was honestly due to our friendly relations with Spain that she should be given a reasonable

chance to realize her expectations of reform to which she had become irrevocably committed. Within a few weeks previously she had announced comprehensive plans which it was confidently asserted would be efficacious to remedy the evils so deeply affecting our own country, so injurious to the true interests of the mother country as well as to those of Cuba, and so repugnant to the universal sentiment of humanity.

The ensuing month brought little sign of real progress toward the pacification of Cuba. The autonomous administrations set up in the capital and some of the principal cities appeared not to gain the favor of the inhabitants nor to be able to extend their influence to the large extent of territory held by the insurgents, while the military arm, obviously unable to cope with the still active rebellion, continued many of the most objectionable and offensive policies of the government that had preceded it. No tangible relief was afforded the vast numbers of unhappy reconcentrados despite the reiterated professions made in that regard and the amount appropriated by Spain to that end. The proffered expedient of zones of cultivation proved illusory; indeed no less practical nor more delusive promises of succor could well have been tendered to the exhausted and destitute people, stripped of all that made life and home dear and herded in a strange region among unsympathetic strangers hardly less necessitous than themselves.

By the end of December the mortality among them had frightfully increased. Conservative estimates from Spanish sources placed the deaths among these distressed people at over forty per cent from the time General Weyler's decree of reconcentration was enforced. With the acquiescence of the Spanish authorities a scheme was adopted for relief by charitable contributions raised in this country and distributed, under the direction of the consul-general and the several consuls, by noble and earnest individual effort through the organized agencies of the American Red Cross. Thousands of lives were thus saved, but many thousands more were inaccessible to such forms of aid.

The war continued on the old footing without comprehensive plan, developing only the same spasmodic encounters, barren of strategic result, that had marked the course of the earlier ten years' rebellion as well as the present insurrection from its start. No alternative save physical exhaustion of either combatant, and therewithal the practical ruin of the Island, lay in sight, but how far distant no one could venture to conjecture.

At this juncture, on the 15th of February last, occurred the destruction of the battle ship *Maine* while rightfully lying in the

harbor of Havana on a mission of international courtesy and good will—a catastrophe the suspicious nature and horror of which stirred the nation's heart profoundly. It is a striking evidence of the poise and sturdy good sense distinguishing our national character that this shocking blow, falling upon a generous people, already deeply touched by preceding events in Cuba, did not move them to an instant, desperate resolve to tolerate no longer the existence of a condition of danger and disorder at our doors that made possible such a deed, by whomsoever wrought. Yet the instinct of justice prevailed and the nation anxiously awaited the result of the searching investigation at once set on foot. The finding of the naval board of inquiry established that the origin of the explosion was external by a submarine mine, and only halted, through lack of positive testimony, to fix the responsibility of its authorship.

All these things carried conviction to the most thoughtful, even before the finding of the naval court, that a crisis in our relations with Spain and toward Cuba was at hand. So strong was this belief that it needed but a brief Executive suggestion to the Congress to receive immediate answer to the duty of making instant provision for the possible and perhaps speedily probable emergency of war, and the remarkable, almost unique, spectacle was presented of a unanimous vote of both Houses, on the 9th of March, appropriating fifty million dollars “for the national defense and for each and every purpose connected therewith, to be expended at the discretion of the President.” That this act of prevision came none too soon was disclosed when the application of the fund was undertaken. Our coasts were practically undefended. Our Navy needed large provision for increased ammunition and supplies, and even numbers to cope with any sudden attack from the Navy of Spain, which comprised modern vessels of the highest type of continental perfection. Our Army also required enlargement of men and munitions. The details of the hurried preparation for the dreaded contingency is told in the reports of the Secretaries of War and of the Navy, and need not be repeated here. It is sufficient to say that the outbreak of war, when it did come, found our nation not unprepared to meet the conflict.

Nor was the apprehension of coming strife confined to our own country. It was felt by the continental powers, which, on April 6th, through their ambassadors and envoys, addressed to the Executive an expression of hope that humanity and moderation might mark the course of this Government and people, and that further negotiations would lead to an agreement which, while securing the main-

tenance of peace, would afford all necessary guarantees for the reestablishment of order in Cuba. In responding to that representation, I said I shared the hope the envoys had expressed that peace might be preserved in a manner to terminate the chronic condition of disturbance in Cuba so injurious and menacing to our interests and tranquillity, as well as shocking to our sentiments of humanity; and, while appreciating the humanitarian and disinterested character of the communication they had made on behalf of the powers, I stated the confidence of this Government, for its part, that equal appreciation would be shown for its own earnest and unselfish endeavors to fulfill a duty to humanity by ending a situation the indefinite prolongation of which had become insufferable.

Still animated by the hope of a peaceful solution and obeying the dictates of duty, no effort was relaxed to bring about a speedy ending of the Cuban struggle. Negotiations to this object continued actively with the Government of Spain, looking to the immediate conclusion of a six months' armistice in Cuba, with a view to effect the recognition of her people's right to independence. Besides this, the instant revocation of the order of reconcentration was asked, so that the sufferers, returning to their homes and aided by united American and Spanish effort, might be put in a way to support themselves, and, by orderly resumption of the well-nigh destroyed productive energies of the Island, contribute to the restoration of its tranquillity and well-being. Negotiations continued for some little time at Madrid, resulting in offers by the Spanish Government which could not but be regarded as inadequate. It was proposed to confide the preparation of peace to the insular parliament, yet to be convened under the autonomous decrees of November, 1897, but without impairment in anywise of the constitutional powers of the Madrid Government, which, to that end, would grant an armistice, if solicited by the insurgents, for such time as the general-in-chief might see fit to fix. How and with what scope of discretionary powers the insular parliament was expected to set about the "preparation" of peace did not appear. If it were to be by negotiation with the insurgents, the issue seemed to rest on the one side with a body chosen by a fraction of the electors in the districts under Spanish control, and on the other with the insurgent population holding the interior country, unrepresented in the so-called parliament, and defiant at the suggestion of suing for peace.

Grieved and disappointed at this barren outcome of my sincere endeavors to reach a practicable solution, I felt it my duty to remit the whole question to the Congress. In the message of April 11,

1898, I announced that with this last overture in the direction of immediate peace in Cuba, and its disappointing reception by Spain, the effort of the Executive was brought to an end. I again reviewed the alternative courses of action which had been proposed, concluding that the only one consonant with international policy and compatible with our firm-set historical traditions was intervention as a neutral to stop the war and check the hopeless sacrifice of life, even though that resort involved "hostile constraint upon both the parties to the contest, as well to enforce a truce as to guide the eventual settlement." The grounds justifying that step were, the interests of humanity; the duty to protect the life and property of our citizens in Cuba; the right to check injury to our commerce and people through the devastation of the Island, and, most important, the need of removing at once and forever the constant menace and the burdens entailed upon our Government by the uncertainties and perils of the situation caused by the unendurable disturbance in Cuba. I said:

The long trial has proved that the object for which Spain has waged the war can not be attained. The fire of insurrection may flame or may smolder with varying seasons, but it has not been, and it is plain that it can not be, extinguished by present methods. The only hope of relief and repose from a condition which can no longer be endured is the enforced pacification of Cuba. In the name of humanity, in the name of civilization, in behalf of endangered American interests which give us the right and the duty to speak and to act, the war in Cuba must stop.

In view of all this, the Congress was asked to authorize and empower the President to take measures to secure a full and final termination of hostilities between Spain and the people of Cuba and to secure in the Island the establishment of a stable government, capable of maintaining order and observing its international obligations, insuring peace and tranquillity, and the security of its citizens as well as our own, and for the accomplishment of those ends to use the military and naval forces of the United States as might be necessary; with added authority to continue generous relief to the starving people of Cuba.

The response of the Congress, after nine days of earnest deliberation, during which the almost unanimous sentiment of your body was developed on every point save as to the expediency of coupling the proposed action with a formal recognition of the Republic of Cuba as the true and lawful government of that Island—a proposition which failed of adoption—the Congress, after conference, on the 19th of April, by a vote of 42 to 35 in the Senate and 311 to 6

in the House of Representatives, passed the memorable joint resolution declaring—

First. That the people of the Island of Cuba are, and of right ought to be, free and independent.

Second. That it is the duty of the United States to demand, and the Government of the United States does hereby demand, that the Government of Spain at once relinquish its authority and government in the Island of Cuba and withdraw its land and naval forces from Cuba and Cuban waters.

Third. That the President of the United States be, and he hereby is, directed and empowered to use the entire land and naval forces of the United States, and to call into the actual service of the United States the militia of the several States, to such extent as may be necessary to carry these resolutions into effect.

Fourth. That the United States hereby disclaims any disposition or intention to exercise sovereignty, jurisdiction, or control over said Island except for the pacification thereof, and asserts its determination when that is accomplished to leave the government and control of the Island to its people.

This resolution was approved by the Executive on the next day, April 20th. A copy was at once communicated to the Spanish Minister at this capital, who forthwith announced that his continuance in Washington had thereby become impossible, and asked for his passports, which were given him. He thereupon withdrew from Washington, leaving the protection of Spanish interests in the United States to the French Ambassador and the Austro-Hungarian Minister. Simultaneously with its communication to the Spanish Minister here, General Woodford, the American Minister at Madrid, was telegraphed confirmation of the text of the joint resolution and directed to communicate it to the Government of Spain with the formal demand that it at once relinquish its authority and government in the Island of Cuba and withdraw its forces therefrom, coupling this demand with announcement of the intentions of this Government as to the future of the Island, in conformity with the fourth clause of the resolution, and giving Spain until noon of April 23d to reply.

That demand, although, as above shown, officially made known to the Spanish envoy here, was not delivered at Madrid. After the instruction reached General Woodford on the morning of April 21st, but before he could present it, the Spanish Minister of State notified him that upon the President's approval of the joint resolution the Madrid Government, regarding the act as "equivalent to an evident declaration of war," had ordered its Minister in Washington to withdraw, thereby breaking off diplomatic relations between the two countries and ceasing all official communication between their

respective representatives. General Woodford thereupon demanded his passports and quitted Madrid the same day.

Spain having thus denied the demand of the United States and initiated that complete form of rupture of relations which attends a state of war, the Executive powers authorized by the resolution were at once used by me to meet the enlarged contingency of actual war between sovereign states. On April 22d I proclaimed a blockade of the north coast of Cuba, including ports on said coast between Cardenas and Bahia Honda and the port of Cienfuegos on the south coast of Cuba; and on the 23d I called for volunteers to execute the purpose of the resolution. By my message of April 25th the Congress was informed of the situation, and I recommended formal declaration of the existence of a state of war between the United States and Spain. The Congress accordingly voted on the same day the act approved April 25, 1898, declaring the existence of such war from and including the 21st day of April, and reenacted the provision of the resolution of April 20th, directing the President to use all the armed forces of the nation to carry that act into effect. Due notification of the existence of war as aforesaid was given April 25th by telegraph to all the governments with which the United States maintain relations, in order that their neutrality might be assured during the war. The various governments responded with proclamations of neutrality, each after its own methods. It is not among the least gratifying incidents of the struggle that the obligations of neutrality were impartially discharged by all, often under delicate and difficult circumstances.

In further fulfillment of international duty I issued, April 26, 1898, a proclamation announcing the treatment proposed to be accorded to vessels and their cargoes as to blockade, contraband, the exercise of the right of search, and the immunity of neutral flags and neutral goods under enemy's flag. A similar proclamation was made by the Spanish Government. In the conduct of hostilities the rules of the Declaration of Paris, including abstention from resort to privateering, have accordingly been observed by both belligerents, although neither was a party to that declaration.

Our country thus, after an interval of half a century of peace with all nations, found itself engaged in deadly conflict with a foreign enemy. Every nerve was strained to meet the emergency. The response to the initial call for 125,000 volunteers was instant and complete, as was also the result of the second call of May 25th for 75,000 additional volunteers. The ranks of the Regular Army were increased to the limits provided by the act of April 26, 1898.

The enlisted force of the Navy on the 15th day of August, when

it reached its maximum, numbered 24,123 men and apprentices. One hundred and three vessels were added to the Navy by purchase, 1 was presented to the Government, 1 leased, and the 4 vessels of the International Navigation Company, the *St. Paul*, *St. Louis*, *New York*, and *Paris*, were chartered. In addition to these the revenue cutters and light-house tenders were turned over to the Navy Department and became temporarily a part of the auxiliary navy.

The maximum effective fighting force of the Navy during the war, separated into classes, was as follows:

Four battle ships of the first class; 1 battle ship of the second class; 2 armored cruisers; 6 coast-defense monitors; 1 armored ram; 12 protected cruisers; 3 unprotected cruisers; 18 gunboats; 1 dynamite cruiser; 11 torpedo boats; vessels of the old Navy, including monitors, 14. Auxiliary Navy: 11 auxiliary cruisers; 28 converted yachts; 27 converted tugs; 19 converted colliers; 15 revenue cutters; 4 light-house tenders, and 19 miscellaneous vessels.

Much alarm was felt along our entire Atlantic seaboard lest some attack might be made by the enemy. Every precaution was taken to prevent possible injury to our great cities lying along the coast. Temporary garrisons were provided, drawn from the State militia; infantry and light batteries were drawn from the volunteer force. About 12,000 troops were thus employed. The coast signal service was established for observing the approach of an enemy's ships to the coast of the United States, and the Life-Saving and Light-House Services cooperated, which enabled the Navy Department to have all portions of the Atlantic Coast, from Maine to Texas, under observation.

The auxiliary navy was created under the authority of Congress and was officered and manned by the Naval Militia of the several States. This organization patrolled the coast, and performed the duty of a second line of defense.

Under the direction of the Chief of Engineers submarine mines were placed at the most exposed points. Before the outbreak of the war permanent mining casemates and cable galleries had been constructed at nearly all important harbors. Most of the torpedo material was not to be found in the market, and had to be specially manufactured. Under date of April 19, district officers were directed to take all preliminary measures, short of the actual attaching of the loaded mines to the cables, and on April 22 telegraphic orders were issued to place the loaded mines in position.

The aggregate number of mines placed was 1,535, at the principal harbors from Maine to California. Preparations were also made for

the planting of mines at certain other harbors, but owing to the early destruction of the Spanish fleet these mines were not placed.

The Signal Corps was promptly organized, and performed service of the most difficult and important character. Its operations during the war covered the electrical connection of all coast fortifications, the establishment of telephonic and telegraphic facilities for the camps at Manila, Santiago, and in Porto Rico. There were constructed 300 miles of line at ten great camps, thus facilitating military movements from those points in a manner heretofore unknown in military administration. Field telegraph lines were established and maintained under the enemy's fire at Manila, and later the Manila-Hongkong cable was reopened.

In Porto Rico cable communications were opened over a discontinued route, and on land the headquarters of the commanding officer was kept in telegraphic or telephonic communication with the division commanders on four different lines of operations.

There was placed in Cuban waters a completely outfitted cable ship, with war cables and cable gear, suitable both for the destruction of communications belonging to the enemy and the establishment of our own. Two ocean cables were destroyed under the enemy's batteries at Santiago. The day previous to the landing of General Shafter's corps at Caimanera, within 20 miles of the landing place, cable communications were established and a cable station opened giving direct communication with the Government at Washington. This service was invaluable to the Executive in directing the operations of the Army and Navy. With a total force of over 1,300 the loss was by disease in camp and field, officers and men included, only five.

The National Defense Fund of \$50,000,000 was expended in large part by the Army and Navy, and the objects for which it was used are fully shown in the reports of the several Secretaries. It was a most timely appropriation, enabling the Government to strengthen its defenses and make preparations greatly needed in case of war.

This fund being inadequate to the requirements of equipment and for the conduct of the war, the patriotism of the Congress provided the means in the war revenue act of June 13th by authorizing a three per cent popular loan not to exceed four hundred million dollars and by levying additional imposts and taxes. Of the authorized loan, two hundred millions were offered and promptly taken, the subscriptions so far exceeding the call as to cover it many times over, while, preference being given to the smaller bids, no single allotment exceeded five thousand dollars. This was a most encouraging and significant result, showing the vast resources of the nation and the determination of the people to uphold their country's honor.

It is not within the province of this message to narrate the history of the extraordinary war that followed the Spanish declaration of April 21st, but a brief recital of its more salient features is appropriate.

The first encounter of the war in point of date took place April 27th, when a detachment of the blockading squadron made a reconnaissance in force at Matanzas, shelled the harbor forts, and demolished several new works in construction.

The next engagement was destined to mark a memorable epoch in maritime warfare. The Pacific fleet, under Commodore George Dewey, had lain for some weeks at Hong-Kong. Upon the colonial proclamation of neutrality being issued and the customary twenty-four hours' notice being given, it repaired to Mirs Bay, near Hong-Kong, whence it proceeded to the Philippine Islands under telegraphed orders to capture or destroy the formidable Spanish fleet then assembled at Manila. At daybreak on the 1st of May the American force entered Manila Bay and after a few hours' engagement effected the total destruction of the Spanish fleet, consisting of ten warships and a transport, besides capturing the naval station and forts at Cavite, thus annihilating the Spanish naval power in the Pacific Ocean and completely controlling the Bay of Manila, with the ability to take the city at will. Not a life was lost on our ships, the wounded only numbering seven, while not a vessel was materially injured. For this gallant achievement the Congress, upon my recommendation, fitly bestowed upon the actors preferment and substantial reward.

The effect of this remarkable victory upon the spirit of our people and upon the fortunes of the war was instant. A prestige of invincibility thereby attached to our arms, which continued throughout the struggle. Reinforcements were hurried to Manila under the command of Major-General Merritt and firmly established within sight of the capital, which lay helpless before our guns.

On the 7th day of May the Government was advised officially of the victory at Manila, and at once inquired of the Commander of our fleet what troops would be required. The information was received on the 15th day of May, and the first army expedition sailed May 25th and arrived off Manila June 30th. Other expeditions soon followed, the total force consisting of 641 officers and 15,058 enlisted men.

Only reluctance to cause needless loss of life and property prevented the early storming and capture of the city, and therewith the absolute military occupancy of the whole group. The insurgents meanwhile had resumed the active hostilities suspended by the uncompleted truce of December, 1897. Their forces invested Manila from the northern and eastern side, but were constrained by Admiral Dewey

and General Merritt from attempting an assault. It was fitting that whatever was to be done in the way of decisive operations in that quarter should be accomplished by the strong arm of the United States alone. Obeying the stern precept of war which enjoins the overcoming of the adversary and the extinction of his power wherever assailable as the speedy and sure means to win a peace, divided victory was not permissible, for no partition of the rights and responsibilities attending the enforcement of a just and advantageous peace could be thought of.

Following the comprehensive scheme of general attack, powerful forces were assembled at various points on our coast to invade Cuba and Porto Rico. Meanwhile naval demonstrations were made at several exposed points. On May 11th the cruiser *Wilmington* and torpedo boat *Winslow* were unsuccessful in an attempt to silence the batteries at Cardenas, a gallant ensign, Worth Bagley, and four seamen falling. These grievous fatalities were strangely enough among the very few which occurred during our naval operations in this extraordinary conflict.

Meanwhile the Spanish naval preparations had been pushed with great vigor. A powerful squadron under Admiral Cervera, which had assembled at the Cape Verde Islands before the outbreak of hostilities, had crossed the ocean, and by its erratic movements in the Caribbean Sea delayed our military plans while baffling the pursuit of our fleets. For a time fears were felt lest the *Oregon* and *Marietta*, then nearing home after their long voyage from San Francisco of over 15,000 miles, might be surprised by Admiral Cervera's fleet, but their fortunate arrival dispelled these apprehensions and lent much needed reinforcement. Not until Admiral Cervera took refuge in the harbor of Santiago de Cuba, about May 19th, was it practicable to plan a systematic naval and military attack upon the Antillean possessions of Spain.

Several demonstrations occurred on the coasts of Cuba and Porto Rico in preparation for the larger event. On May 13th the North Atlantic Squadron shelled San Juan de Porto Rico. On May 30th Commodore Schley's squadron bombarded the forts guarding the mouth of Santiago harbor. Neither attack had any material result. It was evident that well-ordered land operations were indispensable to achieve a decisive advantage.

The next act in the war thrilled not alone the hearts of our countrymen but the world by its exceptional heroism. On the night of June 3d, Lieutenant Hobson, aided by seven devoted volunteers, blocked the narrow outlet from Santiago harbor by sinking the collier *Merrimac* in the channel, under a fierce fire from the

shore batteries, escaping with their lives as by a miracle, but falling into the hands of the Spaniards. It is a most gratifying incident of the war that the bravery of this little band of heroes was cordially appreciated by the Spanish admiral, who sent a flag of truce to notify Admiral Sampson of their safety and to compliment them on their daring act. They were subsequently exchanged July 7th.

By June 7th the cutting of the last Cuban cable isolated the Island. Thereafter the invasion was vigorously prosecuted. On June 10th, under a heavy protecting fire, a landing of 600 marines from the *Oregon*, *Marblehead*, and *Yankee* was effected in Guantanamo Bay, where it had been determined to establish a naval station.

This important and essential port was taken from the enemy after severe fighting by the marines, who were the first organized force of the United States to land in Cuba.

The position so won was held despite desperate attempts to dislodge our forces. By June 16th additional forces were landed and strongly intrenched. On June 22d the advance of the invading army under Major-General Shafter landed at Daiquiri, about 15 miles east of Santiago. This was accomplished under great difficulties but with marvelous dispatch. On June 23d the movement against Santiago was begun. On the 24th the first serious engagement took place, in which the First and Tenth Cavalry and the First United States Volunteer Cavalry, General Young's brigade of General Wheeler's division, participated, losing heavily. By nightfall, however, ground within 5 miles of Santiago was won. The advantage was steadily increased. On July 1st a severe battle took place, our forces gaining the outworks of Santiago; on the 2d El Caney and San Juan were taken after a desperate charge, and the investment of the city was completed. The Navy cooperated by shelling the town and the coast forts.

On the day following this brilliant achievement of our land forces, the 3d of July, occurred the decisive naval combat of the war. The Spanish fleet, attempting to leave the harbor, was met by the American squadron under command of Commodore Sampson. In less than three hours all the Spanish ships were destroyed, the two torpedo boats being sunk, and the *Maria Teresa*, *Almirante Oquendo*, *Vizcaya*, and *Cristóbal Colon* driven ashore. The Spanish admiral and over 1,300 men were taken prisoners, while the enemy's loss of life was deplorably large, some 600 perishing. On our side but one man was killed, on the *Brooklyn*, and one man seriously wounded. Although our ships were repeatedly struck, not one was seriously injured. Where all so conspicuously distinguished themselves, from the commanders to the gunners and the unnamed heroes in the

boiler rooms, each and all contributing toward the achievement of this astounding victory, for which neither ancient nor modern history affords a parallel in the completeness of the event and the marvelous disproportion of casualties, it would be invidious to single out any for especial honor. Deserved promotion has rewarded the more conspicuous actors—the nation's profoundest gratitude is due to all of these brave men who by their skill and devotion in a few short hours crushed the sea power of Spain and wrought a triumph whose decisiveness and far-reaching consequences can scarcely be measured. Nor can we be unmindful of the achievements of our builders, mechanics, and artisans for their skill in the construction of our warships.

With the catastrophe of Santiago Spain's effort upon the ocean virtually ceased. A spasmodic effort toward the end of June to send her Mediterranean fleet under Admiral Camara to relieve Manila was abandoned, the expedition being recalled after it had passed through the Suez Canal.

The capitulation of Santiago followed. The city was closely besieged by land, while the entrance of our ships into the harbor cut off all relief on that side. After a truce to allow of the removal of noncombatants protracted negotiations continued from July 3d until July 15th, when, under menace of immediate assault, the preliminaries of surrender were agreed upon. On the 17th General Shafter occupied the city. The capitulation embraced the entire eastern end of Cuba. The number of Spanish soldiers surrendering was 22,000, all of whom were subsequently conveyed to Spain at the charge of the United States. The story of this successful campaign is told in the report of the Secretary of War, which will be laid before you. The individual valor of officers and soldiers was never more strikingly shown than in the several engagements leading to the surrender of Santiago, while the prompt movements and successive victories won instant and universal applause. To those who gained this complete triumph, which established the ascendancy of the United States upon land as the fight off Santiago had fixed our supremacy on the seas, the earnest and lasting gratitude of the nation is unsparingly due. Nor should we alone remember the gallantry of the living; the dead claim our tears, and our losses by battle and disease must cloud any exultation at the result and teach us to weigh the awful cost of war, however rightful the cause or signal the victory.

With the fall of Santiago the occupation of Porto Rico became the next strategic necessity. General Miles had previously been assigned to organize an expedition for that purpose. Fortunately

he was already at Santiago, where he had arrived on the 11th of July with reinforcements for General Shafter's army.

With these troops, consisting of 3,415 infantry and artillery, two companies of engineers, and one company of the Signal Corps, General Miles left Guantanamo on July 21st, having nine transports convoyed by the fleet under Captain Higginson with the *Massachusetts* (flagship), *Dixie*, *Gloucester*, *Columbia*, and *Yale*, the two latter carrying troops. The expedition landed at Guanica July 25th, which port was entered with little opposition. Here the fleet was joined by the *Annapolis* and the *Wasp*, while the *Puritan* and *Amphitrite* went to San Juan and joined the *New Orleans*, which was engaged in blockading that port. The Major-General Commanding was subsequently reinforced by General Schwan's brigade of the Third Army Corps, by General Wilson with a part of his division, and also by General Brooke with a part of his corps, numbering in all 16,973 officers and men.

On July 27th he entered Ponce, one of the most important ports in the island, from which he thereafter directed operations for the capture of the island.

With the exception of encounters with the enemy at Guayama, Hormigueros, Coamo, and Yauco, and an attack on a force landed at Cape San Juan, there was no serious resistance. The campaign was prosecuted with great vigor, and by the 12th of August much of the island was in our possession and the acquisition of the remainder was only a matter of a short time. At most of the points in the island our troops were enthusiastically welcomed. Protestations of loyalty to the flag and gratitude for delivery from Spanish rule met our commanders at every stage. As a potent influence toward peace the outcome of the Porto Rican expedition was of great consequence and generous commendation is due to those who participated in it.

The last scene of the war was enacted at Manila, its starting place. On August 15, after a brief assault upon the works by the land forces, in which the squadron assisted, the capital surrendered unconditionally. The casualties were comparatively few. By this the conquest of the Philippine Islands, virtually accomplished when the Spanish capacity for resistance was destroyed by Admiral Dewey's victory of the 1st of May, was formally sealed. To General Merritt, his officers and men for their uncomplaining and devoted service and for their gallantry in action the nation is sincerely grateful. Their long voyage was made with singular success, and the soldierly conduct of the men, most of whom were without previous experience in the military service, deserves unmeasured praise.

The total casualties in killed and wounded in the Army during the war with Spain were : Officers killed, 23; enlisted men killed, 257; total, 280; officers wounded, 113; enlisted men wounded, 1,464; total, 1,577. Of the Navy: Killed, 17; wounded, 67; died as result of wounds, 1; invalided from service, 6; total, 91.

It will be observed that while our Navy was engaged in two great battles and in numerous perilous undertakings in blockade and bombardment, and more than 50,000 of our troops were transported to distant lands and were engaged in assault and siege and battle and many skirmishes in unfamiliar territory, we lost in both arms of the service a total of 1,668 killed and wounded; and in the entire campaign by land and sea we did not lose a gun or a flag or a transport or a ship, and with the exception of the crew of the *Merrimac* not a soldier or sailor was taken prisoner.

On August 7th, forty-six days from the date of the landing of General Shafter's army in Cuba and twenty-one days from the surrender of Santiago, the United States troops commenced embarkation for home, and our entire force was returned to the United States as early as August 24th. They were absent from the United States only two months.

It is fitting that I should bear testimony to the patriotism and devotion of that large portion of our Army which, although eager to be ordered to the post of greatest exposure, fortunately was not required outside of the United States. They did their whole duty, and like their comrades at the front have earned the gratitude of the Nation. In like manner, the officers and men of the Army and of the Navy who remained in their departments and stations faithfully performing most important duties connected with the war, and whose requests for assignment in the field and at sea I was compelled to refuse because their services were indispensable here, are entitled to the highest commendation. It is my regret that there seems to be no provision for their suitable recognition.

In this connection it is a pleasure for me to mention in terms of cordial appreciation the timely and useful work of the American National Red Cross both in relief measures preparatory to the campaigns, in sanitary assistance at several of the camps of assemblage, and later, under the able and experienced leadership of the president of the society, Miss Clara Barton, on the fields of battle and in the hospitals at the front in Cuba. Working in conjunction with the governmental authorities and under their sanction and approval, and with the enthusiastic cooperation of many patriotic women and societies in the various States, the Red Cross has fully maintained its already high reputation for intense earnestness and

ability to exercise the noble purposes of its international organization, thus justifying the confidence and support which it has received at the hands of the American people. To the members and officers of this society and all who aided them in their philanthropic work, the sincere and lasting gratitude of the soldiers and the public is due and is freely accorded.

In tracing these events we are constantly reminded of our obligations to the Divine Master for His watchful care over us and His safe guidance, for which the Nation makes reverent acknowledgment and offers humble prayer for the continuance of His favor.

The annihilation of Admiral Cervera's fleet, followed by the capitulation of Santiago, having brought to the Spanish Government a realizing sense of the hopelessness of continuing a struggle now become wholly unequal, it made overtures of peace through the French Ambassador, who with the assent of his Government had acted as the friendly representative of Spanish interests during the war. On the 26th of July, M. Cambon presented a communication signed by the Duke of Almodóvar, the Spanish Minister of State, inviting the United States to state the terms upon which it would be willing to make peace. On the 30th of July, by a communication addressed to the Duke of Almodóvar and handed to M. Cambon, the terms of this Government were announced, substantially as in the protocol afterwards signed. On the 10th of August the Spanish reply, dated August 7th, was handed by M. Cambon to the Secretary of State. It accepted unconditionally the terms imposed as to Cuba, Porto Rico, and an island of the Ladrone group, but appeared to seek to introduce inadmissible reservations in regard to our demand as to the Philippine Islands. Conceiving that discussion on this point could neither be practical nor profitable, I directed that in order to avoid misunderstanding the matter should be forthwith closed by proposing the embodiment in a formal protocol of the terms upon which the negotiations for peace were to be undertaken. The vague and inexplicit suggestions of the Spanish note could not be accepted, the only reply being to present as a virtual ultimatum a draft of protocol embodying the precise terms tendered to Spain in our note of July 30th, with added stipulations of detail as to the appointment of commissioners to arrange for the evacuation of the Spanish Antilles. On August 12th, M. Cambon announced his receipt of full powers to sign the protocol so submitted. Accordingly on the afternoon of August 12th, M. Cambon, as the Plenipotentiary of Spain, and the Secretary of State, as the Plenipotentiary of the United States, signed a protocol providing—

ARTICLE I. Spain will relinquish all claim of sovereignty over and title to Cuba.

ARTICLE II. Spain will cede to the United States the island of Porto Rico and other islands now under Spanish sovereignty in the West Indies, and also an island in the Ladrones to be selected by the United States.

ARTICLE III. The United States will occupy and hold the city, bay, and harbor of Manila pending the conclusion of a treaty of peace which shall determine the control, disposition, and government of the Philippines.

The fourth article provided for the appointment of joint commissions on the part of the United States and Spain, to meet in Havana and San Juan, respectively, for the purpose of arranging and carrying out the details of the stipulated evacuation of Cuba, Porto Rico, and other Spanish islands in the West Indies.

The fifth article provided for the appointment of not more than five Commissioners on each side, to meet at Paris not later than October 1st, and to proceed to the negotiation and conclusion of a treaty of peace, subject to ratification according to the respective constitutional forms of the two countries.

The sixth and last article provided that upon the signature of the protocol hostilities between the two countries should be suspended and that notice to that effect should be given as soon as possible by each Government to the commanders of its military and naval forces.

Immediately upon the conclusion of the protocol I issued a proclamation of August 12th suspending hostilities on the part of the United States. The necessary orders to that end were at once given by telegraph. The blockade of the ports of Cuba and San Juan de Porto Rico was in like manner raised. On the 18th of August the muster out of 100,000 volunteers, or as near that number as was found to be practicable, was ordered.

On the 1st of December 101,165 officers and men had been mustered out and discharged from the service and 9,002 more will be mustered out by the 10th of this month. Also a corresponding number of general and general staff officers have been honorably discharged the service.

The military commissions to superintend the evacuation of Cuba, Porto Rico, and the adjacent islands were forthwith appointed: for Cuba, Major-General James F. Wade, Rear-Admiral William T. Sampson, Major-General Matthew C. Butler; for Porto Rico, Major-General John R. Brooke, Rear-Admiral Winfield S. Schley, Brigadier-General William W. Gordon, who soon afterwards met the Spanish Commissioners at Havana and San Juan, respectively. The Porto Rican Joint Commission speedily accomplished its task, and by the

18th of October the evacuation of the island was completed. The United States flag was raised over the island at noon on that day. The administration of its affairs has been provisionally intrusted to a military governor until the Congress shall otherwise provide. The Cuban Joint Commission has not yet terminated its labors. Owing to the difficulties in the way of removing the large numbers of Spanish troops still in Cuba, the evacuation can not be completed before the 1st of January next.

Pursuant to the fifth article of the protocol, I appointed William R. Day, lately Secretary of State, Cushman K. Davis, William P. Frye, and George Gray, Senators of the United States, and White-law Reid, to be the Peace Commissioners on the part of the United States. Proceeding in due season to Paris, they there met on the 1st of October five commissioners, similarly appointed on the part of Spain. Their negotiations have made hopeful progress, so that I trust soon to be able to lay a definitive treaty of peace before the Senate, with a review of the steps leading to its signature.

I do not discuss at this time the government or the future of the new possessions which will come to us as the result of the war with Spain. Such discussion will be appropriate after the treaty of peace shall be ratified. In the meantime and until the Congress has legislated otherwise it will be my duty to continue the military governments which have existed since our occupation and give to the people security in life and property and encouragement under a just and beneficent rule.

As soon as we are in possession of Cuba and have pacified the Island it will be necessary to give aid and direction to its people to form a government for themselves. This should be undertaken at the earliest moment consistent with safety and assured success. It is important that our relations with this people shall be of the most friendly character and our commercial relations close and reciprocal. It should be our duty to assist in every proper way to build up the waste places of the Island, encourage the industry of the people, and assist them to form a government which shall be free and independent, thus realizing the best aspirations of the Cuban people.

Spanish rule must be replaced by a just, benevolent, and humane government, created by the people of Cuba, capable of performing all international obligations and which shall encourage thrift, industry, and prosperity, and promote peace and good will among all of the inhabitants, whatever may have been their relations in the past. Neither revenge nor passion should have a place in the

new government. Until there is complete tranquillity in the Island and a stable government inaugurated military occupation will be continued.

With the one exception of the rupture with Spain the intercourse of the United States with the great family of nations has been marked with cordiality, and the close of the eventful year finds most of the issues that necessarily arise in the complex relations of sovereign states adjusted or presenting no serious obstacle to a just and honorable solution by amicable agreement. ↑

A long unsettled dispute as to the extended boundary between the Argentine Republic and Chile, stretching along the Andean crests from the southern border of the Atacama Desert to Magellan Straits, nearly a third of the length of the South American continent, assumed an acute stage in the early part of the year, and afforded to this Government occasion to express the hope that the resort to arbitration, already contemplated by existing conventions between the parties, might prevail despite the grave difficulties arising in its application. I am happy to say that arrangements to this end have been perfected, the questions of fact upon which the respective commissioners were unable to agree being in course of reference to Her Britannic Majesty for determination. A residual difference touching the northern boundary line across the Atacama Desert, for which existing treaties provided no adequate adjustment, bids fair to be settled in like manner by a joint commission, upon which the United States Minister at Buenos Aires has been invited to serve as umpire in the last resort.

I have found occasion to approach the Argentine Government with a view to removing differences of rate charges imposed upon the cables of an American corporation in the transmission between Buenos Aires and the cities of Uruguay and Brazil of through messages passing from and to the United States. Although the matter is complicated by exclusive concessions by Uruguay and Brazil to foreign companies, there is strong hope that a good understanding will be reached and that the important channels of commercial communication between the United States and the Atlantic cities of South America may be freed from an almost prohibitory discrimination.

In this relation, I may be permitted to express my sense of the fitness of an international agreement whereby the interchange of messages over connecting cables may be regulated on a fair basis of uniformity. The world has seen the postal system developed from

a congeries of independent and exclusive services into a well-ordered union, of which all countries enjoy the manifold benefits. It would be strange were the nations not in time brought to realize that modern civilization, which owes so much of its progress to the annihilation of space by the electric force, demands that this all-important means of communication be a heritage of all peoples, to be administered and regulated in their common behoof. A step in this direction was taken when the International Convention of 1884 for the protection of submarine cables was signed, and the day is, I trust, not far distant when this medium for the transmission of thought from land to land may be brought within the domain of international concert as completely as is the material carriage of commerce and correspondence upon the face of the waters that divide them.

The claim of Thomas Jefferson Page against Argentina, which has been pending many years, has been adjusted. The sum awarded by the Congress of Argentina was \$4,242.35.

The sympathy of the American people has justly been offered to the Ruler and the people of Austria-Hungary by reason of the affliction that has lately befallen them in the assassination of the Empress-Queen of that historic realm.

On the 10th of September, 1897, a conflict took place at Lattimer, Pa., between a body of striking miners and the sheriff of Luzerne County and his deputies, in which 22 miners were killed and 44 wounded, of whom 10 of the killed and 12 of the wounded were Austrian and Hungarian subjects. This deplorable event naturally aroused the solicitude of the Austro-Hungarian Government, which, on the assumption that the killing and wounding involved the unjustifiable misuse of authority, claimed reparation for the sufferers. Apart from the searching investigation and peremptory action of the authorities of Pennsylvania, the Federal Executive took appropriate steps to learn the merits of the case, in order to be in a position to meet the urgent complaint of a friendly power. The sheriff and his deputies, having been indicted for murder, were tried, and acquitted after protracted proceedings and the hearing of hundreds of witnesses on the ground that the killing was in the line of their official duty to uphold law and preserve public order in the State. A representative of the Department of Justice attended the trial and reported its course fully. With all the facts in its possession, this Government expects to reach a harmonious understanding on the subject with that of Austria-Hungary, notwithstanding the renewed claim of the latter after learning the result of the trial, for indemnity for its injured subjects.

Despite the brief time allotted for preparation, the exhibits of this country at the Universal Exposition at Brussels in 1897 enjoyed the singular distinction of a larger proportion of awards, having regard to the number and classes of articles entered, than those of other countries. The worth of such a result in making known our national capacity to supply the world's markets is obvious.

Exhibitions of this international character are becoming more frequent as the exchanges of commercial countries grow more intimate and varied. Hardly a year passes that this Government is not invited to national participation at some important foreign center, but often on too short notice to permit of recourse to Congress for the power and means to do so. My predecessors have suggested the advisability of providing by a general enactment and a standing appropriation for accepting such invitations and for representation of this country by a commission. This plan has my cordial approval.

I trust that the Belgian restrictions on the importation of cattle from the United States, originally adopted as a sanitary precaution, will at an early day be relaxed as to their present features of hardship and discrimination, so as to admit live cattle under due regulation of their slaughter after landing. I am hopeful, too, of favorable change in the Belgian treatment of our preserved and salted meats. The growth of direct trade between the two countries, not alone for Belgian consumption and Belgian products, but by way of transit from and to other continental states, has been both encouraging and beneficial. No effort will be spared to enlarge its advantages by seeking the removal of needless impediments and by arrangements for increased commercial exchanges.

The year's events in Central America deserve more than passing mention.

A menacing rupture between Costa Rica and Nicaragua was happily composed by the signature of a convention between the parties, with the concurrence of the Guatemalan representative as a mediator, the act being negotiated and signed on board the United States steamer *Alert*, then lying in Central American waters. It is believed that the good offices of our envoy and of the commander of that vessel contributed toward this gratifying outcome.

In my last annual message the situation was presented with respect to the diplomatic representation of this Government in Central America, created by the association of Nicaragua, Honduras, and Salvador under the title of the Greater Republic of Central America and the delegation of their international functions to the Diet thereof.

While the representative character of the Diet was recognized by my predecessor and has been confirmed during my Administration by receiving its accredited envoy and granting exequaturs to consuls commissioned under its authority, that recognition was qualified by the distinct understanding that the responsibility of each of the component sovereign Republics toward the United States remained wholly unaffected.

This proviso was needful inasmuch as the compact of the three Republics was at the outset an association whereby certain representative functions were delegated to a tripartite commission, rather than a federation possessing centralized powers of government and administration. In this view of their relation, and of the relation of the United States to the several Republics, a change in the representation of this country in Central America was neither recommended by the Executive nor initiated by Congress; thus leaving one of our envoys accredited as heretofore separately to two States of the Greater Republic, Nicaragua and Salvador, and to a third State, Costa Rica, which was not a party to the compact, while our other envoy was similarly accredited to a union State—Honduras—and a nonunion State—Guatemala. The result has been that the one has presented credentials only to the President of Costa Rica, the other having been received only by the Government of Guatemala.

Subsequently, the three associated Republics entered into negotiations for taking the steps forecast in the original compact. A convention of their delegates framed for them a federal constitution under the name of the United States of Central America, and provided for a central federal government and legislature. Upon ratification by the constituent States, the 1st of November last was fixed for the new system to go into operation. Within a few weeks thereafter the plan was severely tested by revolutionary movements arising, with a consequent demand for unity of action on the part of the military power of the federal States to suppress them. Under this strain the new Union seems to have been weakened through the withdrawal of its more important members. This Government was not officially advised of the installation of the federation and has maintained an attitude of friendly expectancy, while in nowise relinquishing the position held from the outset that the responsibilities of the several States toward us remained unaltered by their tentative relations among themselves.

The Nicaragua Canal Commission, under the chairmanship of Rear-Admiral John G. Walker, appointed July 24, 1897, under the authority of a provision in the sundry civil act of June 4 of that

year, has nearly completed its labors, and the results of its exhaustive inquiry into the proper route, the feasibility, and the cost of construction of an interoceanic canal by a Nicaraguan route will be laid before you. In the performance of its task the Commission received all possible courtesy and assistance from the Governments of Nicaragua and Costa Rica, which thus testified their appreciation of the importance of giving a speedy and practical outcome to the great project that has for so many years engrossed the attention of the respective countries.

As the scope of the recent inquiry embraced the whole subject with the aim of making plans and surveys for a canal by the most convenient route, it necessarily included a review of the results of previous surveys and plans, and in particular those adopted by the Maritime Canal Company under its existing concessions from Nicaragua and Costa Rica, so that to this extent those grants necessarily hold as essential a part in the deliberations and conclusions of the Canal Commission as they have held and must needs hold in the discussion of the matter by the Congress. Under these circumstances and in view of overtures made to the Governments of Nicaragua and Costa Rica by other parties for a new canal concession predicated on the assumed approaching lapse of the contracts of the Maritime Canal Company with those States, I have not hesitated to express my conviction that considerations of expediency and international policy as between the several governments interested in the construction and control of an interoceanic canal by this route require the maintenance of the status quo until the Canal Commission shall have reported and the United States Congress shall have had the opportunity to pass finally upon the whole matter during the present session, without prejudice by reason of any change in the existing conditions.

Nevertheless, it appears that the Government of Nicaragua, as one of its last sovereign acts before merging its powers in those of the newly formed United States of Central America, has granted an optional concession to another association, to become effective on the expiration of the present grant. It does not appear what surveys have been made or what route is proposed under this contingent grant, so that an examination of the feasibility of its plans is necessarily not embraced in the report of the Canal Commission. All these circumstances suggest the urgency of some definite action by the Congress at this session if the labors of the past are to be utilized and the linking of the Atlantic and Pacific oceans by a practical waterway is to be realized. That the construction of such a maritime highway is now more than ever indispensable to that intimate

and ready intercommunication between our eastern and western seaboards demanded by the annexation of the Hawaiian Islands and the prospective expansion of our influence and commerce in the Pacific, and that our national policy now more imperatively than ever calls for its control by this Government, are propositions which I doubt not the Congress will duly appreciate and wisely act upon.

A convention providing for the revival of the late United States and Chilean Claims Commission and the consideration of claims which were duly presented to the late commission but not considered because of the expiration of the time limited for the duration of the commission, was signed May 24, 1897, and has remained unacted upon by the Senate. The term therein fixed for effecting the exchange of ratifications having elapsed, the convention falls unless the time be extended by amendment, which I am endeavoring to bring about, with the friendly concurrence of the Chilean Government.

The United States has not been an indifferent spectator of the extraordinary events transpiring in the Chinese Empire, whereby portions of its maritime provinces are passing under the control of various European powers; but the prospect that the vast commerce which the energy of our citizens and the necessity of our staple productions for Chinese uses has built up in those regions may not be prejudiced through any exclusive treatment by the new occupants has obviated the need of our country becoming an actor in the scene. Our position among nations, having a large Pacific coast and a constantly expanding direct trade with the farther Orient, gives us the equitable claim to consideration and friendly treatment in this regard, and it will be my aim to subserve our large interests in that quarter by all means appropriate to the constant policy of our Government. The territories of Kiao-chow, of Wei-hai-wai, and of Port Arthur and Talienwan, leased to Germany, Great Britain, and Russia respectively for terms of years, will, it is announced, be open to international commerce during such alien occupation; and if no discriminating treatment of American citizens and their trade be found to exist, or be hereafter developed, the desire of this Government would appear to be realized.

In this relation, as showing the volume and value of our exchanges with China and the peculiarly favorable conditions which exist for their expansion in the normal course of trade, I refer to the communication addressed to the Speaker of the House of Representatives by the Secretary of the Treasury on the 14th of last June, with its accompanying letter of the Secretary of State, recommending an appropriation for a commission to study the commercial

and industrial conditions in the Chinese Empire and report as to the opportunities for and obstacles to the enlargement of markets in China for the raw products and manufactures of the United States. Action was not taken thereon during the late session. I cordially urge that the recommendation receive at your hands the consideration which its importance and timeliness merit.

Meanwhile, there may be just ground for disquietude in view of the unrest and revival of the old sentiment of opposition and prejudice to alien people which pervades certain of the Chinese provinces. As in the case of the attacks upon our citizens in Szechuan and at Kutien in 1895, the United States Minister has been instructed to secure the fullest measure of protection, both local and imperial, for any menaced American interests, and to demand, in case of lawless injury to person or property, instant reparation appropriate to the case. War ships have been stationed at Tientsin for more ready observation of the disorders which have invaded even the Chinese capital, so as to be in a position to act should need arise, while a guard of marines has been sent to Peking to afford the Minister the same measure of authoritative protection as the representatives of other nations have been constrained to employ.

Following close upon the rendition of the award of my predecessor as arbitrator of the claim of the Italian subject, Cerruti, against the Republic of Colombia, differences arose between the parties to the arbitration in regard to the scope and extension of the award, of which certain articles were contested by Colombia, while Italy claimed their literal fulfillment. The award having been made by the President of the United States, as an act of friendly consideration, and with the sole view to an impartial composition of the matter in dispute, I could not but feel deep concern at such a miscarriage, and, while unable to accept the Colombian theory that I, in my official capacity, possessed continuing functions as arbitrator, with power to interpret or revise the terms of the award, my best efforts were lent to bring the parties to a harmonious agreement as to the execution of its provisions.

A naval demonstration by Italy resulted in an engagement to pay the liabilities claimed upon their ascertainment; but this apparent disposition of the controversy was followed by a rupture of diplomatic intercourse between Colombia and Italy which still continues, although fortunately without acute symptoms having supervened. Notwithstanding this, efforts are reported to be continuing for the ascertainment of Colombia's contingent liability on account of Cerruti's debts, under the fifth article of the award.

A claim of an American citizen against the Dominican Republic for a public bridge over the Ozama River, which has been in diplomatic controversy for several years, has been settled by expert arbitration and an award in favor of the claimant amounting to about \$90,000. It however remains unpaid despite urgent demands for its settlement according to the terms of the compact.

There is now every prospect that the participation of the United States in the Universal Exposition to be held in Paris in 1900 will be on a scale commensurate with the advanced position held by our products and industries in the world's chief marts.

The preliminary report of Mr. Moses P. Handy, who, under the act approved July 19, 1897, was appointed Special Commissioner, with a view to securing all attainable information necessary to a full and complete understanding by Congress in regard to the participation of this Government in the Paris Exposition, was laid before you by my message of December 6, 1897, and showed the large opportunities opened to make known our national progress in arts, science, and manufactures, as well as the urgent need of immediate and adequate provision to enable due advantage thereof to be taken. Mr. Handy's death soon afterwards rendered it necessary for another to take up and complete his unfinished work, and on January 11 last Mr. Thomas W. Cridler, Third Assistant Secretary of State, was designated to fulfill that task. His report was laid before you by my message of June 14, 1898, with the gratifying result of awakening renewed interest in the projected display. By a provision in the sundry civil appropriation act of July 1, 1898, a sum not to exceed \$650,000 was allotted for the organization of a commission to care for the proper preparation and installation of American exhibits, and for the display of suitable exhibits by the several Executive Departments, particularly by the Department of Agriculture, the Fish Commission, and the Smithsonian Institution, in representation of the Government of the United States.

Pursuant to that enactment I appointed Mr. Ferdinand W. Peck, of Chicago, Commissioner-General, with an Assistant Commissioner-General and a Secretary. Mr. Peck at once proceeded to Paris, where his success in enlarging the scope and variety of the United States exhibit has been most gratifying. Notwithstanding the comparatively limited area of the Exposition site—less than one-half that of the World's Fair at Chicago—the space assigned to the United States has been increased from the absolute allotment of 157,403 square feet reported by Mr. Handy to some 202,000 square feet, with corresponding augmentation of the field for a truly character-

istic representation of the various important branches of our country's development. Mr. Peck's report will be laid before you. In my judgment its recommendations will call for your early consideration, especially as regards an increase of the appropriation to at least one million dollars in all, so that not only may the assigned space be fully taken up by the best possible exhibits in every class, but the preparation and installation be on so perfect a scale as to rank among the first in that unparalleled competition of artistic and inventive production, and thus counterbalance the disadvantage with which we start as compared with other countries whose appropriations are on a more generous scale and whose preparations are in a state of much greater forwardness than our own.

Where our artisans have the admitted capacity to excel, where our inventive genius has initiated many of the grandest discoveries of these later days of the century, and where the native resources of our land are as limitless as they are valuable to supply the world's needs, it is our province, as it should be our earnest care, to lead in the march of human progress and not rest content with any secondary place. Moreover, if this be due to ourselves, it is no less due to the great French nation whose guests we become, and which has in so many ways testified its wish and hope that our participation shall befit the place the two peoples have won in the field of universal development.

The commercial arrangement made with France on the 28th of May, 1898, under the provisions of section 3 of the Tariff Act of 1897, went into effect on the 1st day of June following. It has relieved a portion of our export trade from serious embarrassment. Further negotiations are now pending under section 4 of the same act, with a view to the increase of trade between the two countries to their mutual advantage. Negotiations with other Governments, in part interrupted by the war with Spain, are in progress under both sections of the Tariff Act. I hope to be able to announce some of the results of these negotiations during the present session of Congress.

Negotiations to the same end with Germany have been set on foot. Meanwhile no effort has been relaxed to convince the Imperial Government of the thoroughness of our inspection of pork products for exportation and it is trusted that the efficient administration of this measure by the Department of Agriculture will be recognized as a guarantee of the healthfulness of the food staples we send abroad to countries where their use is large and necessary.

I transmitted to the Senate, on the 10th of February last, informa-

tion touching the prohibition against the importation of fresh fruits from this country, which had then recently been decreed by Germany on the ground of danger of disseminating the San José scale insect. This precautionary measure was justified by Germany on the score of the drastic steps taken in several States of the Union against the spread of the pest, the elaborate reports of the Department of Agriculture being put in evidence to show the danger to German fruit-growing interests should the scale obtain a lodgment in that country. Temporary relief was afforded in the case of large consignments of fruit then on the way by inspection and admission when found non-infected. Later the prohibition was extended to dried fruits of every kind, but was relaxed so as to apply only to unpeeled fruit and fruit waste. As was to be expected, the alarm reached to other countries, and Switzerland has adopted a similar inhibition. Efforts are in progress to induce the German and Swiss Governments to relax the prohibition in favor of dried fruits shown to have been cured under circumstances rendering the existence of animal life impossible.

Our relations with Great Britain have continued on the most friendly footing. Assenting to our request, the protection of Americans and their interests in Spanish jurisdiction was assumed by the diplomatic and consular representatives of Great Britain, who fulfilled their delicate and arduous trust with tact and zeal, eliciting high commendation. I may be allowed to make fitting allusion to the instance of Mr. Ramsden, Her Majesty's Consul at Santiago de Cuba, whose untimely death after distinguished service and untiring effort during the siege of that city was sincerely lamented.

In the early part of April last pursuant to a request made at the instance of the Secretary of State by the British Ambassador at this capital, the Canadian government granted facilities for the passage of four United States revenue cutters from the Great Lakes to the Atlantic Coast by way of the Canadian canals and the St. Lawrence River. The vessels had reached Lake Ontario and were there awaiting the opening of navigation when war was declared between the United States and Spain. Her Majesty's Government thereupon, by a communication of the latter part of April, stated that the permission granted before the outbreak of hostilities would not be withdrawn provided the United States Government gave assurance that the vessels in question would proceed direct to a United States port without engaging in any hostile operation. This Government promptly agreed to the stipulated condition, it being understood that the vessels would not be prohibited from resisting any hostile attack.

It will give me especial satisfaction if I shall be authorized to communicate to you a favorable conclusion of the pending negotiations with Great Britain in respect to the Dominion of Canada. It is the earnest wish of this Government to remove all sources of discord and irritation in our relations with the neighboring Dominion. The trade between the two countries is constantly increasing, and it is important to both countries that all reasonable facilities should be granted for its development.

The Government of Greece strongly urges the onerousness of the duty here imposed upon the currants of that country, amounting to 100 per cent or more of their market value. This fruit is stated to be exclusively a Greek product, not coming into competition with any domestic product. The question of reciprocal commercial relations with Greece, including the restoration of currants to the free list, is under consideration.

The long-standing claim of Bernard Campbell for damages for injuries sustained from a violent assault committed against him by military authorities in the Island of Haiti, has been settled by the agreement of that Republic to pay him \$10,000 in American gold. Of this sum \$5,000 has already been paid. It is hoped that other pending claims of American citizens against that Republic may be amicably adjusted.

Pending the consideration by the Senate of the treaty signed June 16, 1897, by the plenipotentiaries of the United States and of the Republic of Hawaii, providing for the annexation of the Islands, a joint resolution to accomplish the same purpose by accepting the offered cession and incorporating the ceded territory into the Union was adopted by the Congress and approved July 7, 1898. I thereupon directed the U. S. S. *Philadelphia* to convey Rear-Admiral Miller to Honolulu, and intrusted to his hands this important legislative act, to be delivered to the President of the Republic of Hawaii, with whom the Admiral and the United States Minister were authorized to make appropriate arrangements for transferring the sovereignty of the Islands to the United States. This was simply but impressively accomplished on the 12th of August last, by the delivery of a certified copy of the resolution to President Dole, who thereupon yielded up to the representative of the Government of the United States the sovereignty and public property of the Hawaiian Islands.

Pursuant to the terms of the joint resolution and in exercise of
Ab. 98—3

the authority thereby conferred upon me, I directed that the civil, judicial, and military powers theretofore exercised by the officers of the Government of the Republic of Hawaii should continue to be exercised by those officers until Congress shall provide a government for the incorporated territory, subject to my power to remove such officers and to fill vacancies. The President, officers, and troops of the Republic thereupon took the oath of allegiance to the United States, thus providing for the uninterrupted continuance of all the administrative and municipal functions of the annexed territory until Congress shall otherwise enact.

Following the further provision of the joint resolution, I appointed the Honorables Shelby M. Cullom, of Illinois, John T. Morgan, of Alabama, Robert R. Hitt, of Illinois, Sanford B. Dole, of Hawaii, and Walter F. Frear, of Hawaii, as commissioners to confer and recommend to Congress such legislation concerning the Hawaiian Islands as they should deem necessary or proper. The Commissioners having fulfilled the mission confided to them, their report will be laid before you at an early day. It is believed that their recommendations will have the earnest consideration due to the magnitude of the responsibility resting upon you to give such shape to the relationship of those mid-Pacific lands to our home Union as will benefit both in the highest degree, realizing the aspirations of the community that has cast its lot with us and elected to share our political heritage, while at the same time justifying the foresight of those who for three-quarters of a century have looked to the assimilation of Hawaii as a natural and inevitable consummation, in harmony with our needs and in fulfillment of our cherished traditions.

The questions heretofore pending between Hawaii and Japan, growing out of the alleged mistreatment of Japanese treaty immigrants, were, I am pleased to say, adjusted before the act of transfer by the payment of a reasonable indemnity to the Government of Japan.

Under the provisions of the joint resolution, the existing customs relations of the Hawaiian Islands with the United States and with other countries remain unchanged until legislation shall otherwise provide. The consuls of Hawaii, here and in foreign countries, continue to fulfill their commercial agencies, while the United States consulate at Honolulu is maintained for all appropriate services pertaining to trade and the revenue. It would be desirable that all foreign consuls in the Hawaiian Islands should receive new exequaturs from this Government.

The attention of Congress is called to the fact that our consular offices having ceased to exist in Hawaii, and being about to cease

in other countries coming under the sovereignty of the United States, the provisions for the relief and transportation of destitute American seamen in these countries under our consular regulations will in consequence terminate. It is proper, therefore, that new legislation should be enacted upon this subject, in order to meet the changed conditions.

The interpretation of certain provisions of the extradition convention of December 11, 1861, has been at various times the occasion of controversy with the Government of Mexico. An acute difference arose in the case of the Mexican demand for the delivery of Jesús Guerra, who, having led a marauding expedition near the border with the proclaimed purpose of initiating an insurrection against President Diaz, escaped into Texas. Extradition was refused on the ground that the alleged offense was political in its character and therefore came within the treaty proviso of nonsurrender. The Mexican contention was that the exception only related to purely political offenses, and that as Guerra's acts were admixed with the common crime of murder, arson, kidnaping, and robbery the option of nondelivery became void, a position which this Government was unable to admit in view of the received international doctrine and practice in the matter. The Mexican Government, in view of this, gave notice January 24, 1898, of the termination of the convention, to take effect twelve months from that date, at the same time inviting the conclusion of a new convention, toward which negotiations are on foot.

In this relation I may refer to the necessity of some amendment of our existing extradition statute. It is a common stipulation of such treaties that neither party shall be bound to give up its own citizens, with the added proviso in one of our treaties, that with Japan, that it may surrender if it see fit. It is held in this country by an almost uniform course of decisions that where a treaty negatives the obligation to surrender the President is not invested with legal authority to act. The conferment of such authority would be in the line of that sound morality which shrinks from affording secure asylum to the author of a heinous crime. Again, statutory provision might well be made for what is styled extradition by way of transit, whereby a fugitive surrendered by one foreign government to another may be conveyed across the territory of the United States to the jurisdiction of the demanding state. A recommendation in this behalf, made in the President's Message of 1886, was not acted upon. The matter is presented for your consideration.

The problem of the Mexican Free Zone has been often discussed

with regard to its inconvenience as a provocative of smuggling into the United States along an extensive and thinly guarded land border. The effort made by the joint resolution of March 1, 1895, to remedy the abuse charged by suspending the privilege of free transportation in bond across the territory of the United States to Mexico failed of good result, as is stated in Report No. 702 of the House of Representatives, submitted in the last session, March 11, 1898. As the question is one to be conveniently met by wise concurrent legislation of the two countries looking to the protection of the revenues by harmonious measures operating equally on either side of the boundary, rather than by conventional arrangements, I suggest that Congress consider the advisability of authorizing and inviting a conference of representatives of the Treasury Departments of the United States and Mexico to consider the subject in all its complex bearings, and make report with pertinent recommendations to the respective Governments for the information and consideration of their Congresses.

The Mexican Water Boundary Commission has adjusted all matters submitted to it to the satisfaction of both Governments save in three important cases; that of the "Chamizal" at El Paso, Texas, where the two Commissioners failed to agree and wherein, for this case only, this Government has proposed to Mexico the addition of a third member; the proposed elimination of what are known as "Bancos," small isolated islands formed by the cutting off of bends in the Rio Grande, from the operation of the Treaties of 1884 and 1889, recommended by the Commissioners and approved by this Government, but still under consideration by Mexico; and the subject of the "Equitable Distribution of the Waters of the Rio Grande," for which the Commissioners recommended an international dam and reservoir, approved by Mexico, but still under consideration by this Government. Pending these questions it is necessary to extend the life of the Commission which expires December 23d next.

The coronation of the young Queen of the Netherlands was made the occasion of fitting congratulations.

The claim of Victor H. McCord against Peru, which for a number of years has been pressed by this Government and has on several occasions attracted the attention of the Congress, has been satisfactorily adjusted. A protocol was signed May 17, 1898, whereby, the fact of liability being admitted, the question of the amount to be awarded was submitted to the Chief Justice of Canada as sole arbitrator. His award sets the indemnity due the claimant at \$40,000.

The Government of Peru has given the prescribed notification of its intention to abrogate the Treaty of Friendship, Commerce, and Navigation concluded with this country August 31, 1887. As that treaty contains many important provisions necessary to the maintenance of commerce and good relations, which could with difficulty be replaced by the negotiation of renewed provisions within the brief twelve months intervening before the treaty terminates, I have invited suggestions by Peru as to the particular provisions it is desired to annul, in the hope of reaching an arrangement whereby the remaining articles may be provisionally saved.

His Majesty the Tsar having announced his purpose to raise the Imperial Russian mission at this Capital to the rank of an Embassy, I responded, under the authority conferred by the act of March 3, 1893, by commissioning and accrediting the actual representative at St. Petersburg in the capacity of Ambassador Extraordinary and Plenipotentiary. The Russian Ambassador to this country has since presented his credentials.

The proposal of the Tsar for a general reduction of the vast military establishments that weigh so heavily upon many peoples in time of peace was communicated to this Government with an earnest invitation to be represented in the conference which it is contemplated to assemble with a view to discussing the means of accomplishing so desirable a result. His Majesty was at once informed of the cordial sympathy of this Government with the principle involved in his exalted proposal and of the readiness of the United States to take part in the conference. The active military force of the United States, as measured by our population, territorial area, and taxable wealth, is, and under any conceivable prospective conditions must continue to be, in time of peace so conspicuously less than that of the armed powers to whom the Tsar's appeal is especially addressed that the question can have for us no practical importance save as marking an auspicious step toward the betterment of the condition of the modern peoples and the cultivation of peace and good will among them; but in this view it behooves us as a nation to lend countenance and aid to the beneficent project.

The claims of owners of American sealing vessels for seizure by Russian cruisers in Bering Sea are being pressed to a settlement. The equities of the cases justify the expectation that a measure of reparation will eventually be accorded in harmony with precedent and in the light of the proven facts.

The recommendation made in my special message of April 27th last is renewed, that appropriation be made to reimburse the master

and owners of the Russian bark *Hans* for wrongful arrest of the master and detention of the vessel in February, 1896, by officers of the United States district court for the southern district of Mississippi. The papers accompanying my said message make out a most meritorious claim, and justify the urgency with which it has been presented by the Government of Russia.

Malietoa Laupepa, King of Samoa, died on August 22d last. According to Article I of the general act of Berlin "his successor shall be duly elected according to the laws and customs of Samoa."

Arrangements having been agreed upon between the signatories of the general act for the return of Mataafa and the other exiled Samoan chiefs, they were brought from Jaluit by a German war vessel and landed at Apia on September 18th last.

Whether the death of Malietoa and the return of his old-time rival Mataafa will add to the undesirable complications which the execution of the tripartite General Act has heretofore developed remains to be seen. The efforts of this Government will, as heretofore, be addressed toward a harmonious and exact fulfillment of the terms of the international engagement to which the United States became a party in 1889.

The Cheek claim against Siam, after some five years of controversy, has been adjusted by arbitration, under an agreement signed July 6, 1897, an award of 706,721 ticals (about \$187,987.78), with release of the Cheek estate from mortgage claims, having been rendered March 21, 1898, in favor of the claimant, by the arbitrator, Sir Nicholas John Hannen, British Chief Justice for China and Japan.

An envoy from Siam has been accredited to this Government and has presented his credentials.

Immediately upon the outbreak of the war with Spain the Swiss Government, fulfilling the high mission it has deservedly assumed as the patron of the International Red Cross, proposed to the United States and Spain that they should severally recognize and carry into execution, as a *modus vivendi*, during the continuance of hostilities, the additional articles proposed by the international conference of Geneva, October 20, 1868, extending the effects of the existing Red Cross convention of 1864 to the conduct of naval war. Following the example set by France and Germany in 1870 in adopting such a *modus vivendi*, and in view of the accession of the United States to those additional articles in 1882, although the exchange of rati-

fications thereof still remained uneffected, the Swiss proposal was promptly and cordially accepted by us, and, simultaneously, by Spain.

This Government feels a keen satisfaction in having thus been enabled to testify its adherence to the broadest principles of humanity even amidst the clash of war, and it is to be hoped that the extension of the Red Cross compact to hostilities by sea as well as on land may soon become an accomplished fact through the general promulgation of the additional naval Red Cross articles by the maritime powers now parties to the Convention of 1864.

The important question of the claim of Switzerland to the perpetual cantonal allegiance of American citizens of Swiss origin has not made hopeful progress toward a solution, and controversies in this regard still continue.

The newly accredited envoy of the United States to the Ottoman Porte carries instructions looking to the disposal of matters in controversy with Turkey for a number of years. He is especially charged to press for a just settlement of our claims for indemnity by reason of the destruction of the property of American missionaries resident in that country during the Armenian troubles of 1895, as well as for the recognition of older claims of equal justness.

He is also instructed to seek an adjustment of the dispute growing out of the refusal of Turkey to recognize the acquired citizenship of Ottoman-born persons naturalized in the United States since 1869 without prior imperial consent; and in the same general relation he is directed to endeavor to bring about a solution of the question which has more or less acutely existed since 1869 concerning the jurisdictional rights of the United States in matters of criminal procedure and punishment under Article IV of the treaty of 1830. This latter difficulty grows out of a verbal difference, claimed by Turkey to be essential, between the original Turkish text and the promulgated translation.

After more than two years from the appointment of a consul of this country to Erzerum, he has received his exequatur.

The arbitral tribunal appointed under the treaty of February 2, 1897, between Great Britain and Venezuela to determine the boundary line between the latter and the colony of British Guiana, is to convene at Paris during the present month. It is a source of much gratification to this Government to see the friendly resort of arbitration applied to the settlement of this controversy, not alone because of the earnest part we have had in bringing about the result, but

also because the two members named on behalf of Venezuela, Mr. Chief Justice Fuller and Mr. Justice Brewer, chosen from our highest court, appropriately testify the continuing interest we feel in the definitive adjustment of the question according to the strictest rules of justice. The British members, Lord Herschell and Sir Richard Collins, are jurists of no less exalted repute, while the fifth member and President of the Tribunal, M. F. de Martens, has earned a world-wide reputation as an authority upon international law.

The claim of Felipe Scandella against Venezuela for arbitrary expulsion and injury to his business has been adjusted by the revocation of the order of expulsion and by the payment of the sum of \$16,000.

I have the satisfaction of being able to state that the Bureau of the American Republics, created in 1890 as the organ for promoting commercial intercourse and fraternal relations among the countries of the Western Hemisphere, has become a more efficient instrument of the wise purposes of its founders, and is receiving the cordial support of the contributing members of the International Union which are actually represented in its board of management. A commercial directory, in two volumes, containing a mass of statistical matter descriptive of the industrial and commercial interests of the various countries, has been printed in English, Spanish, Portuguese, and French, and a monthly bulletin published in these four languages and distributed in the Latin-American countries as well as in the United States, has proved to be a valuable medium for disseminating information and furthering the varied interests of the International Union.

During the past year the important work of collecting information of practical benefit to American industries and trade through the agency of the diplomatic and consular officers has been steadily advanced, and in order to lay such data before the public with the least delay the practice was begun in January, 1898, of issuing the commercial reports from day to day as they are received by the Department of State. It is believed that for promptitude as well as fullness of information the service thus supplied to our merchants and manufacturers will be found to show sensible improvement and to merit the liberal support of Congress.

The experiences of the last year bring forcibly home to us a sense of the burdens and the waste of war. We desire, in common with most civilized nations, to reduce to the lowest possible point the damage sustained in time of war by peaceable trade and commerce.

It is true we may suffer in such cases less than other communities, but all nations are damaged more or less by the state of uneasiness and apprehension into which an outbreak of hostilities throws the entire commercial world. It should be our object, therefore, to minimize, so far as practicable, this inevitable loss and disturbance. This purpose can probably best be accomplished by an international agreement to regard all private property at sea as exempt from capture or destruction by the forces of belligerent powers. The United States Government has for many years advocated this humane and beneficent principle, and is now in position to recommend it to other powers without the imputation of selfish motives. I therefore suggest for your consideration that the Executive be authorized to correspond with the Governments of the principal maritime powers with a view of incorporating into the permanent law of civilized nations the principle of the exemption of all private property at sea, not contraband of war, from capture or destruction by belligerent powers.

The Secretary of the Treasury reports that the receipts of the Government from all sources during the fiscal year ended June 30, 1898, including \$64,751,223 received from sale of Pacific Railroads, amounted to \$405,321,335 and its expenditures to \$443,368,582. There was collected from customs \$149,575,062 and from internal revenue \$170,900,641. Our dutiable imports amounted to \$324,635,479, a decrease of \$58,156,690 over the preceding year, and importations free of duty amounted to \$291,414,175, a decrease from the preceding year of \$90,524,068. Internal-revenue receipts exceeded those of the preceding year by \$24,212,067.

The total tax collected on distilled spirits was \$92,546,999; on manufactured tobacco, \$36,230,522, and on fermented liquors, \$39,515,421. We exported merchandise during the year amounting to \$1,231,482,330, an increase of \$180,488,774 from the preceding year.

It is estimated upon the basis of present revenue laws that the receipts of the Government for the year ending June 30, 1899, will be \$577,874,647 and its expenditures \$689,874,647, resulting in a deficiency of \$112,000,000.

On the 1st of December, 1898, there was held in the Treasury gold coin amounting to \$138,441,547, gold bullion amounting to \$138,502,545, silver bullion amounting to \$93,359,250, and other forms of money amounting to \$451,963,981.

On the same date the amount of money of all kinds in circulation, or not included in Treasury holdings, was \$1,886,879,504, an

increase for the year of \$165,794,966. Estimating our population at 75,194,000 at the time mentioned the *per capita* circulation was \$25.09. On the same date there was in the Treasury gold bullion amounting to \$138,502,545.

The provisions made for strengthening the resources of the Treasury in connection with the war has given increased confidence in the purpose and power of the Government to maintain the present standard, and has established more firmly than ever the national credit at home and abroad. A marked evidence of this is found in the inflow of gold to the Treasury. Its net gold holdings on November 1, 1898, were \$239,885,162 as compared with \$153,573,147 on November 1, 1897, and an increase of net cash of \$207,756,100, November 1, 1897, to \$300,238,275, November 1, 1898. The present ratio of net Treasury gold to outstanding Government liabilities, including United States notes, Treasury notes of 1890, silver certificates, currency certificates, standard silver dollars, and fractional silver coin, November 1, 1898, was 25.35 per cent as compared with 16.96 per cent, November 1, 1897.

I renew so much of my recommendation of December, 1897, as follows:

That when any of the United States notes are presented for redemption in gold and are redeemed in gold, such notes shall be kept and set apart and only paid out in exchange for gold. This is an obvious duty. If the holder of the United States note prefers the gold and gets it from the Government, he should not receive back from the Government a United States note without paying gold in exchange for it. The reason for this is made all the more apparent when the Government issues an interest-bearing debt to provide gold for the redemption of United States notes—a non-interest-bearing debt. Surely it should not pay them out again except on demand and for gold. If they are put out in any other way, they may return again, to be followed by another bond issue to redeem them—another interest-bearing debt to redeem a non-interest-bearing debt.

This recommendation was made in the belief that such provisions of law would insure to a greater degree the safety of the present standard, and better protect our currency from the dangers to which it is subjected from a disturbance in the general business conditions of the country.

In my judgment, the present condition of the Treasury amply justifies the immediate enactment of the legislation recommended one year ago, under which a portion of the gold holdings should be placed in a trust fund from which greenbacks should be redeemed upon presentation, but when once redeemed should not thereafter be paid out except for gold.

It is not to be inferred that other legislation relating to our currency is not required; on the contrary there is an obvious demand for it.

The importance of adequate provision which will insure to our future a money standard related as our money standard now is to that of our commercial rivals is generally recognized.

The companion proposition that our domestic paper currency shall be kept safe and yet be so related to the needs of our industries and internal commerce as to be adequate and responsive to such needs is a proposition scarcely less important. The subject, in all its parts, is commended to the wise consideration of the Congress.

The annexation of Hawaii and the changed relations of the United States to Cuba, Porto Rico, and the Philippines resulting from the war, compel the prompt adoption of a maritime policy by the United States. There should be established regular and frequent steamship communication, encouraged by the United States, under the American flag, with the newly acquired islands. Spain furnished to its colonies, at an annual cost of about two millions of dollars, steamship lines communicating with a portion of the world's markets as well as with trade centers of the home government. The United States will not undertake to do less. It is our duty to furnish the people of Hawaii with facilities, under national control, for their export and import trade. It will be conceded that the present situation calls for legislation which shall be prompt, durable, and liberal.

The part which American merchant vessels and their seamen performed in the war with Spain demonstrates that this service, furnishing both pickets and the second line of defense, is a national necessity, and should be encouraged in every constitutional way.

Details and methods for the accomplishment of this purpose are discussed in the report of the Secretary of the Treasury, to which the attention of Congress is respectfully invited.

In my last annual message I recommended that Congress authorize the appointment of a commission for the purpose of making systematic investigations with reference to the cause and prevention of yellow fever. This matter has acquired an increased importance as a result of the military occupation of the Island of Cuba and the commercial intercourse between this Island and the United States which we have every reason to expect. The sanitary problems connected with our new relations with the Island of Cuba and the acquisition of Porto Rico are no less important than those relating to finance, commerce, and administration. It is my earnest

desire that these problems may be considered by competent experts and that everything may be done which the most recent advances in sanitary science can offer for the protection of the health of our soldiers in those islands and of our citizens who are exposed to the dangers of infection from the importation of yellow fever. I therefore renew my recommendation that the authority of Congress may be given and a suitable appropriation made to provide for a commission of experts to be appointed for the purpose indicated.

Under the act of Congress approved April 26, 1898, authorizing the President in his discretion, "upon a declaration of war by Congress, or a declaration by Congress that war exists," I directed the increase of the Regular Army to the maximum of 62,000, authorized in said act.

There are now in the Regular Army 57,862 officers and men. In said act it was provided "That at the end of any war in which the United States may become involved the Army shall be reduced to a peace basis by the transfer in the same arm of the service or absorption by promotion or honorable discharge under such regulations as the Secretary of War may establish of supernumerary commissioned officers and the honorable discharge or transfer of supernumerary enlisted men; and nothing contained in this Act shall be construed as authorizing the permanent increase of the commissioned or enlisted force of the Regular Army beyond that now provided by the law in force prior to the passage of this Act, except as to the increase of twenty-five majors provided for in section one hereof."

The importance of legislation for the permanent increase of the Army is therefore manifest, and the recommendation of the Secretary of War for that purpose has my unqualified approval. There can be no question that at this time, and probably for sometime in the future, one hundred thousand men will be none too many to meet the necessities of the situation. At all events, whether that number shall be required permanently or not, the power should be given to the President to enlist that force if in his discretion it should be necessary; and the further discretion should be given him to recruit for the Army within the above limit from the inhabitants of the islands with the government of which we are charged.

It is my purpose to muster out the entire Volunteer Army as soon as the Congress shall provide for the increase of the regular establishment. This will be only an act of justice and will be much appreciated by the brave men who left their homes and employments to help the country in its emergency.

In my last annual message I stated: "The Union Pacific Railway, Main Line, was sold under the decree of the United States court for the district of Nebraska on the 1st and 2d of November of this year. The amount due the Government consisted of the principal of the subsidy bonds, \$27,236,512, and the accrued interest thereon, \$31,211,711.75, making the total indebtedness \$58,448,223.75. The bid at the sale covered the first-mortgage lien and the entire mortgage claim of the Government, principal and interest."

This left the Kansas Pacific case unconcluded. By a decree of the court in that case an upset price for the property was fixed at a sum which would yield to the Government only \$2,500,000 upon its lien. The sale at the instance of the Government was postponed first to December 15, 1897, and later upon the application of the United States was postponed to the 16th day of February, 1898.

Having satisfied myself that the interests of the Government required that an effort should be made to obtain a larger sum, I directed the Secretary of the Treasury, under the act passed March 3, 1887, to pay out of the Treasury to the persons entitled to receive the same the amounts due upon all prior mortgages upon the Eastern and Middle Divisions of said railroad out of any money in the Treasury not otherwise appropriated. Whereupon the Attorney-General prepared a petition to be presented to the court offering to redeem said prior liens in such manner as the court might direct, and praying that thereupon the United States might be held to be subrogated to all the rights of said prior lien holders and that a receiver might be appointed to take possession of the mortgaged premises and maintain and operate the same until the court or Congress otherwise directed. Thereupon the reorganization committee agreed that if said petition was withdrawn and the sale allowed to proceed on the 16th of February, 1898, they would bid a sum at the sale which would realize to the Government the entire principal of its debt, \$6,303,000.

Believing that no better price could be obtained and appreciating the difficulties under which the Government would labor if it should become the purchaser of the road at the sale, in the absence of any authority by Congress to take charge of and operate the road I directed that upon the guaranty of a minimum bid which should give the Government the principal of its debt the sale should proceed. By this transaction the Government secured an advance of \$3,803,000 over and above the sum which the court had fixed as the upset price, and which the reorganization committee had declared was the maximum which they would pay for the property.

It is a gratifying fact that the result of these proceedings against

the Union Pacific system and the Kansas Pacific line is that the Government has received on account of its subsidy claim the sum of \$64,751,223.75, an increase of \$18,997,163.76 over the sum which the reorganization committee originally agreed to bid for the joint property, the Government receiving its whole claim, principal and interest, on the Union Pacific, and the principal of its debt on the Kansas Pacific Railroad.

Steps had been taken to foreclose the Government's lien upon the Central Pacific Railroad Company, but before action was commenced Congress passed an act approved July 7, 1898, creating a commission consisting of the Secretary of the Treasury, the Attorney-General, and the Secretary of the Interior, and their successors in office, with full power to settle the indebtedness to the Government growing out of the issue of bonds in aid of the construction of the Central Pacific and Western Pacific bond-aided railroads, subject to the approval of the President.

No report has yet been made to me by the commission thus created. Whatever action is had looking to a settlement of the indebtedness in accordance with the act referred to will be duly submitted to the Congress.

I deem it my duty to call to the attention of Congress the condition of the present building occupied by the Department of Justice. The business of that Department has increased very greatly since it was established in its present quarters. The building now occupied by it is neither large enough nor of suitable arrangement for the proper accommodation of the business of the Department. The Supervising Architect has pronounced it unsafe and unsuited for the use to which it is put. The Attorney-General in his report states that the library of the Department is upon the fourth floor, and that all the space allotted to it is so crowded with books as to dangerously overload the structure. The first floor is occupied by the Court of Claims. The building is of an old and dilapidated appearance, unsuited to the dignity which should attach to this important Department.

A proper regard for the safety, comfort, and convenience of the officers and employees would justify the expenditure of a liberal sum of money in the erection of a new building of commodious proportions and handsome appearance upon the very advantageous site already secured for that purpose, including the ground occupied by the present structure and adjoining vacant lot, comprising in all a frontage of 201 feet on Pennsylvania avenue and a depth of 136 feet.

In this connection I may likewise refer to the inadequate accom-

modations provided for the Supreme Court in the Capitol, and suggest the wisdom of making provision for the erection of a separate building for the court and its officers and library upon available ground near the Capitol.

The postal service of the country advances with extraordinary growth. Within twenty years both the revenues and the expenditures of the Post-Office Department have multiplied threefold. In the last ten years they have nearly doubled. Our postal business grows much more rapidly than our population. It now involves an expenditure of \$100,000,000 a year, numbers 73,000 post-offices, and enrolls 200,000 employees. This remarkable extension of a service which is an accurate index of the public conditions presents gratifying evidence of the advancement of education, of the increase of communication and business activity, and of the improvement of mail facilities leading to their constantly augmenting use.

The war with Spain laid new and exceptional labors on the Post-Office Department. The mustering of the military and naval forces of the United States required special mail arrangements for every camp and every campaign. The communication between home and camp was naturally eager and expectant. In some of the larger places of rendezvous as many as fifty thousand letters a day required handling. This necessity was met by the prompt detail and dispatch of experienced men from the established force and by directing all the instrumentalities of the railway-mail and post-office service, so far as necessary, to this new need. Congress passed an act empowering the Postmaster-General to establish offices or branches at every military camp or station, and under this authority the postal machinery was speedily put into effective operation.

Under the same authority, when our forces moved upon Cuba, Porto Rico, and the Philippines they were attended and followed by the postal service. Though the act of Congress authorized the appointment of postmasters where necessary, it was early determined that the public interests would best be subserved, not by new designations, but by the detail of experienced men familiar with every branch of the service, and this policy was steadily followed. When the territory which was the theater of conflict came into our possession, it became necessary to reestablish mail facilities for the resident population as well as to provide them for our forces of occupation, and the former requirement was met through the extension and application of the latter obligation. I gave the requisite authority and the same general principle was applied to this as to other branches of civil administration under military occupation. The

details are more particularly given in the report of the Postmaster-General, and while the work is only just begun, it is pleasing to be able to say that the service in the territory which has come under our control is already materially improved.

The following recommendations of the Secretary of the Navy relative to the increase of the Navy have my earnest approval:

1. Three seagoing sheathed and coppered battle ships of about 13,500 tons trial displacement, carrying the heaviest armor and most powerful ordnance for vessels of their class, and to have the highest practicable speed and great radius of action. Estimated cost, exclusive of armor and armament, \$3,600,000 each.

2. Three sheathed and coppered armored cruisers of about 12,000 tons trial displacement, carrying the heaviest armor and most powerful ordnance for vessels of their class, and to have the highest practicable speed and great radius of action. Estimated cost, exclusive of armor and armament, \$4,000,000 each.

3. Three sheathed and coppered protected cruisers of about 6,000 tons trial displacement; to have the highest practicable speed and great radius of action, and to carry the most powerful ordnance suitable for vessels of their class. Estimated cost, exclusive of armor and armament, \$2,150,000 each.

4. Six sheathed and coppered cruisers of about 2,500 tons trial displacement; to have the highest speed compatible with good cruising qualities, great radius of action, and to carry the most powerful ordnance suited to vessels of their class. Estimated cost, exclusive of armament, \$1,141,800 each.

I join with the Secretary of the Navy in recommending that the grades of Admiral and Vice-Admiral be temporarily revived, to be filled by officers who have specially distinguished themselves in the war with Spain.

I earnestly urge upon Congress the importance of early legislation providing for the taking of the Twelfth Census. This is necessary in view of the large amount of work which must be performed in the preparation of the schedules preparatory to the enumeration of the population.

There were on the pension rolls on June 30, 1898, 993,714 names, an increase of nearly 18,000 over the number on the rolls on the same day of the preceding year. The amount appropriated by the act of December 22, 1896, for the payment of pensions for the fiscal year of 1898 was \$140,000,000. Eight million seventy thousand eight hundred and seventy-two dollars and forty-six cents was

appropriated by the act of March 31, 1898, to cover deficiencies in Army pensions, and repayments in the sum of \$12,020.33, making a total of \$148,082,892.79 available for the payment of pensions during the fiscal year 1898. The amount disbursed from that sum was \$144,651,879.80, leaving a balance of \$3,431,012.99 unexpended on the 30th of June, 1898, which was covered into the Treasury. There were 389 names added to the rolls during the year by special acts passed at the second session of the Fifty-fifth Congress, making a total of 6,486 pensioners by Congressional enactments since 1861.

The total receipts of the Patent Office during the past year were \$1,253,948.44. The expenditures were \$1,081,633.79, leaving a surplus of \$172,314.65.

The public lands disposed of by the Government during the year reached 8,453,896.92 acres, an increase of 614,780.26 acres over the previous year. The total receipts from public lands during the fiscal year amounted to \$2,277,995.18, an increase of \$190,063.90 over the preceding year. The lands embraced in the eleven forest reservations, which were suspended by the act of June 4, 1897, again became subject to the operations of the proclamations of February 22, 1897, creating them, which added an estimated amount of 19,951,360 acres to the area embraced in the reserves previously created. In addition thereto two new reserves were created during the year—the Pine Mountain and Zaca Lake Reserve in California, embracing 1,644,594 acres, and the Prescott Reserve in Arizona, embracing 10,240 acres; while the Pecos River Reserve in New Mexico has been changed and enlarged to include 120,000 additional acres.

At the close of the year thirty forest reservations, not including those of the Afognac Forest and the Fish-Culture Reserve in Alaska, had been created by Executive proclamations under section 24 of the act of March 3, 1891, embracing an estimated area of 40,719,474 acres.

The Department of the Interior has inaugurated a forest system, made possible by the act of July, 1898, for a graded force of officers in control of the reserves. This system has only been in full operation since August, but good results have already been secured in many sections. The reports received indicate that the system of patrol has not only prevented destructive fires from gaining headway, but has diminished the number of fires.

The special attention of the Congress is called to that part of the report of the Secretary of the Interior in relation to the Five Civilized Tribes. It is noteworthy that the general condition of the Indians shows marked progress. But one outbreak of a serious character occurred during the year, and that among the Chippewa Indians of Minnesota, which happily has been suppressed.

While it has not yet been practicable to enforce all the provisions of the act of June 28, 1898 "for the protection of the people of the Indian Territory, and for other purposes," it is having a salutary effect upon the nations composing the Five Tribes. The Dawes Commission reports that the most gratifying results and greater advance toward the attainment of the objects of the Government have been secured in the past year than in any previous year. I can not too strongly indorse the recommendation of the Commission and of the Secretary of the Interior for the necessity of providing for the education of the 30,000 white children resident in the Indian Territory.

The Department of Agriculture has been active in the past year. Explorers have been sent to many of the countries of the Eastern and Western Hemispheres for seeds and plants that may be useful to the United States and with the further view of opening up markets for our surplus products. The Forestry Division of the Department is giving special attention to the treeless regions of our country and is introducing species specially adapted to semiarid regions. Forest fires which seriously interfere with production, especially in irrigated regions, are being studied that losses from this cause may be avoided. The Department is inquiring into the use and abuse of water in many States of the West and collating information regarding the laws of the States, the decisions of the courts, and the customs of the people in this regard, so that uniformity may be secured. Experiment stations are becoming more effective every year. The annual appropriation of \$720,000 by Congress is supplemented by \$400,000 from the States. Nation-wide experiments have been conducted to ascertain the suitableness as to soil and climate and States for growing sugar beets. The number of sugar factories has been doubled in the past two years and the ability of the United States to produce its own sugar from this source has been clearly demonstrated.

The Weather Bureau forecast and observation stations have been extended around the Caribbean Sea, to give early warning of the approach of hurricanes from the south seas to our fleets and merchant marine.

In the year 1900 will occur the centennial anniversary of the founding of the city of Washington for the permanent Capital of the Government of the United States by authority of an act of Congress approved July 16, 1790. In May, 1800, the archives and general offices of the Federal Government were removed to this place. On the 17th of November, 1800, the National Congress met here for the first time and assumed exclusive control of the Federal Dis-

trict and City. This interesting event assumes all the more significance when we recall the circumstances attending the choosing of the site, the naming of the Capital in honor of the Father of his Country, and the interest taken by him in the adoption of plans for its future development on a magnificent scale.

These original plans have been wrought out with a constant progress and a signal success even beyond anything their framers could have foreseen. The people of the country are justly proud of the distinctive beauty and government of the Capital, and of the rare instruments of science and education which here find their natural home.

A movement lately inaugurated by the citizens to have the anniversary celebrated with fitting ceremonies, including perhaps the establishment of a handsome permanent memorial to mark so historical an occasion, and to give it more than local recognition, has met with general favor on the part of the public.

I recommend to the Congress the granting of an appropriation for this purpose and the appointment of a committee from its respective bodies. It might also be advisable to authorize the President to appoint a committee from the country at large, which, acting with the Congressional and District of Columbia committees, can complete the plans for an appropriate national celebration.

The alien contract law is shown by experience to need some amendment; a measure providing better protection for seamen is proposed; the rightful application of the eight-hour law for the benefit of labor and of the principle of arbitration are suggested for consideration; and I commend these subjects to the careful attention of the Congress.

The several departmental reports will be laid before you. They give in great detail the conduct of the affairs of the Government during the past year and discuss many questions upon which the Congress may feel called upon to act.

WILLIAM MCKINLEY.

EXECUTIVE MANSION,
December 5, 1898.

ANNUAL REPORT ON THE FINANCES.

TREASURY DEPARTMENT,
Washington, D. C., December 6, 1898.

SIR: I have the honor to submit the following report:

RECEIPTS AND EXPENDITURES.

Fiscal year 1898.

The revenues of the Government from all sources for the fiscal year ended June 30, 1898, were :

From internal revenue.....	\$170, 900, 641. 49
From customs.....	149, 575, 062. 35
From profits on coinage, bullion deposits, etc.....	4, 756, 469. 71
From District of Columbia.....	3, 693, 282. 98
From fees—consular, letters patent, and land.....	2, 639, 750. 54
From tax on national banks.....	1, 975, 849. 28
From sales of public lands.....	1, 243, 129. 42
From navy pension and navy hospital funds.....	1, 146, 590. 41
From miscellaneous.....	1, 007, 352. 96
From sinking fund for Pacific railways.....	781, 986. 83
From sales of Indian lands.....	576, 687. 41
From customs fees, fines, penalties, etc.....	576, 487. 50
From payment of interest by Pacific railways	526, 286. 13
From immigrant fund.....	306, 992. 86
From sales of Government property.....	224, 331. 32
From deposits for surveying public lands.....	113, 049. 08
From Soldiers' Home, permanent fund.....	107, 612. 49
From donations.....	102, 394. 87
From sales of lands and buildings.....	99, 273. 95
From sales of ordnance material.....	94, 638. 59
From reimbursement for cost of water supply, District of Columbia...	93, 086. 98
From depredations on public lands	29, 154. 30
From sale of Kansas Pacific Railroad.....	6, 303, 000. 00
From sale of Union Pacific Railroad.....	58, 448, 223. 75
From Postal Service.....	89, 012, 618. 55
Total receipts.....	<u>494, 333, 953. 75</u>

The expenditures for the same period were :

For the civil establishment, including foreign intercourse, public buildings, collecting the revenues, District of Columbia, and other miscellaneous expenses.....	\$86, 016, 464. 75
For the military establishment, including rivers and harbors, forts, arsenals, seacoast defenses, and expenses of the Spanish war.....	91, 992, 000. 29
For the naval establishment, including construction of new vessels, machinery, armament, equipment, improvement at navy yards, and expenses of the Spanish war	58, 823, 964. 80

For Indian Service.....	\$10,994,667.70
For pensions.....	147,452,368.61
For interest on the public debt.....	37,585,056.23
For deficiency in postal revenues.....	10,504,040.42
For Postal Service.....	89,012,618.55
Total expenditures.....	532,381,201.35
Showing a deficit of.....	38,047,247.60

In addition to the revenues collected during the year and the amounts received from the sale of the Union Pacific and Kansas Pacific railroads, the cash in the Treasury was increased by the following sums: From national-bank fund deposited under act of July 14, 1890, in excess of bank notes redeemed, \$6,034,510, and from the issue of 4 per cent bonds in liquidation of interest accrued on refunding certificates converted during the year, \$2,340, making a total of \$6,036,850. The securities redeemed on account of the sinking fund were as follows:

Loan of July and August, 1861.....	\$11,000.00
Funded loan of 1881.....	2,650.00
Funded loan of 1881, continued at 3½ per cent.....	100.00
Funded loan of 1891.....	21,350.00
Loan of July, 1882.....	100.00
Fractional currency and notes.....	4,900.00
Total.....	40,100.00

As compared with the fiscal year 1897, the receipts for 1898 increased \$63,946,785.86, as follows:

Increase in receipts for 1898.

Source.	1897.	1898.	Increase.	Decrease.
Internal revenue.....	\$146,688,574.29	\$170,900,641.49	\$24,212,067.20	
Sales of public lands.....	864,581.41	1,243,129.42	378,548.01	
District of Columbia.....	3,566,130.29	3,693,282.98	127,152.69	
Miscellaneous.....	913,119.93	1,007,352.96	94,233.03	
Sales of ordnance material.....	48,368.66	94,638.59	46,269.93	
Navy pension and navy hospital funds.....	1,122,883.06	1,146,590.41	23,707.36	
Sales of Government property.....	202,712.43	224,331.32	21,618.89	
Sales of lands and buildings.....	81,319.70	99,273.95	17,954.25	
Tax on national banks.....	1,972,500.83	1,975,849.28	3,348.45	
Customs.....	176,564,126.66	149,575,062.35		\$26,979,064.30
Profits on coinage, bullion deposits, etc.....	7,239,813.53	4,756,469.71		2,483,343.82
Sinking fund for Pacific railways.....	2,277,173.25	781,986.83		1,495,186.42
Payment of interest by Pacific railways.....	942,148.39	626,286.13		415,862.26
Sales of Indian lands.....	845,419.03	576,687.41		268,731.62
Fees—consular, letters patent, and land.....	2,881,565.12	2,639,750.54		241,804.58
Reimbursement for cost of watersupply, District of Columbia.....	321,097.75	93,086.98		228,010.77
Depredations on public lands.....	48,478.54	29,154.30		19,324.24
Soldiers' Home, permanent fund.....	126,617.94	107,612.49		19,005.45
Deposits for surveying public lands.....	128,320.75	113,049.08		15,271.67
Customs fees, fines, penalties, etc.....	586,827.45	576,487.50		10,339.95
Immigrant fund.....	309,936.17	306,992.86		2,943.31
Donations.....		102,394.87	102,394.87	
Sale of Kansas Pacific Railroad.....		6,303,000.00	6,303,000.00	
Sale of Union Pacific Railroad.....		58,448,223.75	58,448,223.75	
Postal Service.....	82,665,462.73	89,012,618.55	6,347,155.82	
Total.....	430,387,167.89	494,333,953.75	63,946,785.86	32,178,888.39
Net increase.....			63,946,785.86	

There was an increase of \$77,594,423.23 in the ordinary expenditures, as follows:

Increase in ordinary expenditures for 1898.

Object.	1897.	1898.	Increase.	Decrease.
CIVIL ESTABLISHMENT.				
Legislative—				
Salaries and expenses.....	\$9,537,248.21	\$9,438,577.31		\$98,670.90
Executive proper—				
Salaries and expenses.....	193,994.34	199,150.90	\$5,156.56	
Department of State—				
Salaries and expenses.....	133,684.81	133,975.25	290.44	
Foreign intercourse.....	2,076,876.84	2,485,581.13	408,704.29	
Treasury Department—				
Salaries and expenses.....	3,099,944.79	3,074,323.46	34,378.67	
Independent Treasury.....	602,369.65	593,635.66		8,733.99
Mints and assay offices.....	1,176,516.13	1,123,172.18		43,343.95
Territorial governments.....	196,277.88	92,591.56		103,686.32
Salaries, etc., internal revenue.....	3,517,566.01	3,615,635.85	98,069.84	
Bounty on sugar.....	4,962,630.88	1,098,737.70		3,863,893.18
Refund for land sold for direct taxes.....	14,787.37	455.50		14,331.87
Miscellaneous, internal revenue.....	153,915.28	187,632.10	33,716.82	
Collecting customs revenue.....	7,076,372.05	7,152,276.56	76,904.51	
Refunding excess of deposits, customs.....	1,368,396.21	1,999,577.60	631,181.39	
Debentures or drawbacks, customs.....	2,359,748.15	2,928,835.87	569,087.72	
Miscellaneous items, customs.....	216,989.19	229,546.49	12,557.30	
Revenue Cutter Service.....	945,180.93	1,066,478.04	121,297.11	
Regulating immigration.....	325,210.85	210,791.49		114,419.36
Chinese-exclusion act.....	85,550.62	82,460.61		3,090.01
New revenue vessels.....	371,140.43	430,199.85	59,059.42	
Alien contract labor laws.....	90,846.36	88,841.15		2,005.21
Marine-Hospital Service.....	620,606.90	709,248.04	88,741.14	
Life-Saving Service.....	1,507,340.63	1,537,740.00	30,399.37	
Light-House Establishment.....	3,390,060.45	3,331,256.37		58,804.08
Coast and Geodetic Survey.....	830,865.52	478,007.84	97,142.33	
Steamboat-Inspection Service.....	839,561.18	340,009.04	447.86	
Engraving and printing.....	1,120,561.69	1,129,261.93		1,299.66
Public buildings.....	3,758,795.67	3,760,684.57	1,888.90	
Fuel, etc., public buildings.....	847,469.37	881,331.38	33,862.01	
Custodians and janitors.....	749,109.91	928,999.40	179,889.49	
Furniture for public buildings.....	205,120.88	199,446.31		5,674.57
Heating apparatus, public buildings.....	146,224.71	101,507.45		44,717.26
Vaults, safes, etc., public buildings.....	83,176.00	34,697.58	1,521.58	
Fish hatcheries.....	86,158.08	80,547.75		5,610.33
Salaries and expenses, Fish Commission.....	342,669.24	384,622.91	41,953.67	
National Museum.....	195,740.14	221,051.67	25,311.53	
Zoological Park.....	67,779.26	54,862.31		12,916.95
Smithsonian Institution.....	127,551.75	127,968.27	416.52	
Columbian Exposition.....	21,928.17	2,864.39		19,063.78
Interstate Commerce Commission.....	235,891.36	241,253.15	5,361.79	
Expenses of Treasury notes.....	166,043.19	230,329.61	64,286.42	
French spoliation claims.....	11,946.81			11,946.81
Atlanta Exposition.....	12,853.64	28.58		12,825.06
Tennessee Exposition.....	80,000.00	49,947.42		30,052.58
Omaha Exposition.....		114,132.29	114,132.29	
Payment to Southern Pacific Company.....	1,542,839.46			1,542,839.46
Epidemic diseases.....	32,677.89	215,278.94	182,601.05	
Expenses, loan of 1898.....		50,000.00	50,000.00	
Sinking fund, Union Pacific Railroad.....		4,549,368.26	4,549,368.26	
Miscellaneous items.....	377,385.49	474,569.68	97,184.19	
War Department—				
Salaries and expenses.....	1,864,354.09	1,897,778.67	33,424.58	
Navy Department—				
Salaries and expenses.....	410,983.43	426,496.99	15,563.56	
Interior Department—				
Salaries and expenses.....	4,809,041.83	4,787,499.10		41,542.73
Public Lands Service.....	2,323,201.56	2,207,994.80		115,206.76
Colleges for agriculture.....	1,056,000.00	1,104,000.00	48,000.00	
Eleventh Census.....	25,817.73	758.54		25,059.19
Miscellaneous items.....	600,988.08	591,100.39		9,887.69
Post-Office Department—				
Salaries and expenses.....	902,914.82	870,481.01		32,433.81
Deficiency in postal revenues.....	11,149,206.13	10,504,040.42		645,165.71
Mail transportation, Pacific railways.....	1,569,153.38	867,797.45		711,355.93
Department of Agriculture—				
Salaries and expenses.....	2,176,530.38	2,284,498.49	107,968.11	
Weather Bureau.....	848,949.64	908,814.39	59,864.75	
Department of Labor—				
Salaries and expenses.....	170,698.76	179,772.28	9,073.50	

Increase in ordinary expenditures for 1898—Continued.

Object.	1897.	1898.	Increase.	Decrease.
Department of Justice—				
Salaries and expenses.....	\$317,675.06	\$371,145.58	\$53,470.52	
Salaries of justices, assistant attorneys, etc.....	1,091,139.35	1,135,181.88	44,042.53	
Salaries, fees, and expenses of marshals.....	1,592,188.32	1,375,427.93		\$216,760.39
Fees of witnesses.....	1,099,167.26	965,579.46		143,587.80
Salaries and fees of district attorneys	101,355.67	516,520.17	415,164.50	
Fees of jurors.....	572,540.39	649,139.58	76,599.19	
Fees of clerks.....	296,977.98	253,459.39		43,518.59
Fees of commissioners.....	241,177.79	197,981.33		43,196.46
Support of prisoners.....	587,264.25	907,337.60	350,073.35	
Pay of bailiffs.....	98,893.34	178,255.72	79,362.38	
Judgments, United States courts.....	10,027.47	51,220.53	41,193.06	
Protecting property in hands of receivers.....	15,945.82	2,144.21		13,801.61
Miscellaneous items.....	668,119.63	537,917.52		130,202.11
District of Columbia—				
Salaries and expenses.....	6,508,539.34	6,319,726.84		188,812.50
	95,968,325.72		8,948,627.01	
Less repayment to Pacific Railroad sinking funds.....	5,567,067.90		5,567,067.90	
Total Civil Establishment.....	90,401,267.82	96,520,505.17	14,515,684.91	8,396,447.56
MILITARY ESTABLISHMENT.				
National defense.....		7,034,112.30	7,034,112.30	
Cuban and Philippine expeditions.....		600,034.00	600,034.00	
Pay Department.....	13,723,532.36	21,443,090.19	7,719,557.83	
Subsistence Department.....	1,406,430.12	5,922,441.36	4,516,011.24	
Quartermaster's Department.....	6,720,465.60	18,831,850.56	12,111,384.96	
Medical Department.....	790,628.25	494,287.34		296,340.91
Ordnance Department.....	7,702,888.08	10,786,774.65	3,083,886.57	
Engineer's Department.....	375,383.93	774,589.07	399,205.14	
Signal Service.....	22,043.16	35,126.57	13,083.41	
Military Academy.....	234,974.80	280,085.70	45,110.90	
Improving harbors.....	4,769,797.75	5,678,777.97	908,980.22	
Improving rivers.....	8,912,906.06	15,106,271.99	6,193,365.93	
Military posts.....	352,947.33	899,190.37	46,243.04	
Records of the Rebellion.....	95,344.89	153,124.71	57,779.82	
National Home for Disabled Soldiers.....	2,330,801.20	2,286,943.73		43,857.47
State homes for disabled soldiers.....	723,466.81	913,750.00	190,283.19	
Support of Soldiers' Home.....	126,593.09	107,612.49		18,980.60
Soldiers' Home, permanent fund.....	104,782.80	129,000.00	24,217.20	
Soldiers' Home, interest account.....	81,266.44	81,715.55	449.11	
Miscellaneous items.....	476,015.22	933,221.74	457,206.52	
Total Military Establishment.....	48,950,267.89	91,992,000.29	43,400,911.38	359,178.98
NAVAL ESTABLISHMENT.				
National defense.....		20,622,415.20	20,622,415.20	
Increase of the Navy.....	14,539,911.36	10,753,388.73		3,786,522.63
Vessels for auxiliary naval force.....		352,010.00	352,010.00	
Bureau of Yards and Docks.....	1,575,829.90	1,774,571.02	198,741.12	
Bureau of Equipment.....	1,455,594.46	1,843,121.78	387,527.32	
Bureau of Navigation.....	168,002.80	174,406.11	6,403.31	
Bureau of Construction and Repair.....	2,292,056.16	3,008,220.42	716,164.26	
Bureau of Ordnance.....	587,189.06	1,662,784.44	765,645.44	
Bureau of Steam Engineering.....	1,130,229.12	1,498,417.36	368,188.24	
Bureau of Supplies and Accounts.....	1,971,560.31	3,349,543.07	1,377,982.76	
Bureau of Medicine and Surgery.....	311,329.48	301,681.06		10,668.43
Marine Corps.....	1,063,676.64	1,174,974.32	121,297.68	
Naval Academy.....	273,759.45	224,485.32		50,274.13
Pay of the Navy.....	8,311,599.35	9,067,658.07	756,058.72	
General account of advances.....	308,908.04	2,258,701.75	1,949,793.71	
Miscellaneous items.....	281,950.22	771,726.16	489,775.94	
Total Naval Establishment.....	34,561,546.29	59,823,984.80	28,109,903.70	3,847,465.19
Indian Service.....	13,016,802.46	10,994,667.70		2,022,134.76
Pensions.....	141,063,164.63	147,432,368.61	6,369,203.98	
Interest on the public debt.....	87,791,110.48	37,585,056.23		50,206,054.25
Grand total.....	365,774,159.57	443,368,582.80	92,425,708.97	14,831,280.74
Net increase.....			77,594,423.23	

Fiscal year 1899.

The revenues of the Government for the current fiscal year are thus estimated upon the basis of existing laws:

From customs.....	\$195,000,000.00
From internal revenue	270,000,000.00
From miscellaneous sources.....	20,000,000.00
From Postal Service.....	92,874,647.37
Total estimated revenues.....	577,874,647.37

The expenditures for the same period are estimated as follows:

For the civil establishment.....	\$93,000,000.00
For the military establishment	250,000,000.00
For the naval establishment.....	60,000,000.00
For the Indian Service.....	12,000,000.00
For pensions.....	141,000,000.00
For interest on the public debt.....	41,000,000.00
For Postal Service.....	92,874,647.37
Total estimated expenditures.....	689,874,647.37
Or a deficit of.....	112,000,000.00

Fiscal year 1900.

It is estimated that upon the basis of existing laws the revenues of the Government for the fiscal year 1900 will be:

From customs.....	\$205,000,000.00
From internal revenue	285,000,000.00
From miscellaneous sources.....	20,000,000.00
From Postal Service	100,958,112.00
Total estimated revenues.....	610,958,112.00

The estimates of appropriations required for the same period, as submitted by the several Executive Departments and offices, are as follows:

Legislative establishment.....	\$4,476,995.86
Executive establishment—	
Executive proper.....	\$239,980.00
State Department.....	157,820.00
Treasury Department.....	9,661,040.00
War Department.....	2,373,866.00
Navy Department.....	502,280.00
Interior Department.....	4,890,234.00
Post-Office Department.....	950,190.00
Department of Agriculture.....	3,127,722.00
Department of Justice.....	231,950.00
Department of Labor.....	172,980.00
	22,308,112.00
Judicial establishment.....	707,620.00
Foreign intercourse.....	1,833,028.76
Military establishment.....	145,119,431.51
Naval establishment.....	39,114,652.08
Indian affairs.....	7,069,316.41
Pensions.....	145,233,830.00
Public works—	
Legislative.....	7,500.00
Treasury Department.....	5,844,739.97
War Department.....	42,852,991.20
Navy Department.....	8,013,599.00

<i>Public Works—Continued.</i>		
Interior Department.....	\$113, 250. 00	
Department of Justice.....	95, 000. 00	
		\$56, 927, 080. 17
<i>Miscellaneous—</i>		
Legislative.....	3, 811, 095. 30	
Treasury Department.....	13, 252, 376. 28	
War Department.....	5, 589, 299. 00	
Interior Department.....	2, 429, 613. 20	
Department of Justice.....	5, 001, 012. 00	
District of Columbia.....	7, 230, 808. 07	
		37, 314, 203. 85
Postal Service, including \$4,265,888 deficiency in postal revenues.....		105, 224, 000. 00
<i>Permanent annual appropriations—</i>		
Interest on the public debt.....	40, 400, 000. 00	
Refunding—customs, internal revenue, etc.....	5, 422, 000. 00	
Collecting revenue from customs.....	5, 500, 000. 00	
Miscellaneous.....	24, 356, 220. 00	
		75, 678, 220. 00
Total estimated appropriations, exclusive of sinking fund.....		641, 006, 490. 64
Or an estimated deficit of.....		30, 048, 378. 64

OPERATIONS OF THE TREASURY.

The aggregate receipts for the fiscal year, under warrant, as shown by the report of the Treasurer of the United States, were \$738,549,255.20, and the disbursements, \$827,588,124.80. There was consequently a decrease of \$89,038,869.60 in the general Treasury balance, which stood at \$864,790,237.71 at the opening of the year and at \$775,751,368.11 at the close. Besides the ordinary revenues, there were receipts on account of the public debt which swelled the total income available in the fiscal operations of the Government to \$481,612,255.20, while corresponding additions to the ordinary expenditures brought the total on this side of the account up to \$543,561,104.80, and created a deficiency of \$61,948,849.60 as the net result. These figures, however, do not include any part of the loan of \$200,000,000, the proceeds of which had begun to come in before the close of the year, though none were formally covered into the Treasury until afterwards. On the side of the receipts is included the sum of \$64,751,223.75, realized from the sale of the Union Pacific and Kansas Pacific railroads, while, on the other hand, the expenditures are increased by \$29,850,952, disbursed in the redemption of Pacific Railroad subsidy bonds.

A better view of the results of the year's fiscal operations is afforded by the changes in the assets of the Treasury. The total holdings available in this branch of the business show only the insignificant falling off from \$283,295,424.23 to \$275,747,803.17. So unusual a variance as this between the accounts of the Department and the actual condition of the Treasury is due chiefly to the receipts from the new loan, on the one hand, and to unexpended advances to disbursing officers on the other.

In the character of the assets there was such an improvement as to constitute a substantial gain in strength. The changes were an increase in gold and in deposits with national banks, while the losses were in

silver and Treasury notes. With insignificant interruptions, the free gold, which stood at \$139,867,158.57 at the beginning of the year, continued to increase until it reached \$181,240,388.81 on May 4, 1898. After this, the extraordinary expenditures caused by the war, together with the depletion of the other forms of cash, compelled the use of gold in current disbursements, and drew down the Treasury reserve, by June 18, to \$163,474,057.32. After that date the proceeds of the loan began to afford relief, and the reserve grew rapidly, until it reached \$245,063,795.51 on October 7, 1898, the highest point this fund has ever attained. Since then the necessities of the situation have required an enlarged use of the coin in disbursements, which has had the inevitable result of diminishing the holdings, though only to an insignificant extent.

By forethought and care an ample stock of notes of suitable denominations was provided to meet the demand for the annual movement of the crops, and the difficulties presented by this task in former years have been in large part avoided. Within forty days after the 1st of September, Chicago alone was supplied with \$5,150,000 in small notes in exchange for larger denominations. In the twelve months ended September 30 last the amount of outstanding notes of the denomination of \$20 and under increased from \$861,433,826 to \$903,090,863, while the increase of the gold coin in circulation in the same period, all of course of the like denominations, amounted to \$94,551,059, making a total addition to such currency of \$136,208,096.

Although the net gold in the Treasury during the past year has exceeded the needs of the Government, having been greater, both absolutely and in proportion to other moneys, than ever before, it was found possible, up to the middle of October, to accept gold coin to the extent of over fifteen millions of dollars in exchange for notes of small denominations, which were needed to facilitate the business of the country.

The first proceeds of the popular loan of \$200,000,000 were received on the 14th of June, and from that date forward the inflow of money from this source has been rapid and constant. The total amount received up to November 1 was \$195,444,187.62.

With the object of averting the possibility of financial stringency, which might have been apprehended as the result of the drain upon the currency in circulation, the payment of the interest due October 1 on the 4 per cent loan of 1907 was anticipated, the maturing coupons being made payable on September 10, while the checks for the interest on the registered bonds were sent out September 20. Like anticipation was also made in the case of the interest falling due November 1. The total amount of the payments thus advanced was \$9,815,116.85. With like purpose, under the circular of September 3, 1898, the Pacific Railroad bonds, which will fall due on January 1, 1899, amounting to \$14,004,560, were made payable, principal and interest, in full, with a rebate of one-half of 1 per cent. It was also directed that a large share

of the proceeds of the popular loan be deposited in national banks, so that these funds, while at all times available for use, might, until needed, remain in the channels of trade. The deposits in national banks were thus increased by \$66,775,610.88 between May 31 and October 31.

The effect of these measures has proved in all respects satisfactory.

COINS AND COINAGE.

The Director of the Mint, in his report for the fiscal year ended June 30, 1898,* shows in detail the operations of the institutions under his charge, and also statistics of coinage, production, and monetary conditions of foreign countries.

Deposits.

The receipts and deposits of bullion at mints and assay offices, including redeposits, aggregated \$215,566,261.54, of which \$198,740,492.23 was gold and \$16,825,769.31 silver, classified as follows:

Gold:

Domestic bullion.....	\$69,881,120.57
Mutilated and uncurrent domestic coin.....	1,187,682.99
Foreign bullion and coin.....	73,687,447.90
Old plate and jewelry.....	2,936,943.37

Total original deposits.....	147,693,194.83
Redeposits.....	51,047,297.40

Total deposits.....	198,740,492.23
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Silver (coinage value):

Domestic bullion.....	6,484,364.07
Mutilated and uncurrent domestic coin.....	5,443,436.13
Foreign bullion and coin.....	717,227.19
Old plate and jewelry.....	616,572.72

Total original deposits.....	13,261,600.11
Redeposits.....	3,564,169.20

Total deposits.....	16,825,769.31
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The deposits of gold were greater than in any previous year of our history. In but one other year have the original deposits exceeded \$100,000,000, the exception being the fiscal year ended June 30, 1881, when they were \$130,833,102.45.

Purchases.

Silver bullion purchased under the provisions of section 3526, Revised Statutes of the United States, for coinage of subsidiary silver aggregated 193,522.30 fine ounces, costing \$107,741.28.

Coinage.

The coinage executed during the fiscal year was:

Gold.....	\$64,634,865.00
Silver dollars.....	10,002,780.00
Subsidiary silver.....	6,482,804.00
Minor.....	1,489,484.11
Total.....	82,609,933.11

* See page 200.

The silver dollars coined were from bullion purchased under the act of July 14, 1890.

The total coinage of silver dollars from bullion purchased under act of July 14, 1890, from August 13, 1890, to July 1, 1898, was \$78,751,257, containing 60,909,175.32 fine ounces, costing \$58,460,975.54, giving a seigniorage of \$20,290,281.46.

In addition to the above coinage, there were manufactured at the mint at Philadelphia for the Government of Costa Rica 20,000 twenty-colone gold pieces, of the value of \$186,141.02, and for the Government of Santo Domingo the following silver pieces :

Denomination.	Pieces.
Dollars (pesos).....	250, 539
Half dollars (medio pesos).....	908, 668
Twenty-cent pieces (20 centavos).....	1, 882, 189
Ten-cent pieces (10 centavos)	759, 715

Recoinage.

Uncurrent gold coin of the face value of \$1,198,860, and mutilated silver coin of the face value of \$6,109,772.32, were received, as follows :

Transferred and purchased.	Face value.	
	Gold coin.	Silver coin.
Transferred from the Treasury.....	\$549, 851. 00	\$6, 104, 140. 80
Purchased over the counter.....	649, 509. 00	5, 681. 52
Total.....	1, 198, 860. 00	6, 109, 772. 32

This represents in new gold coin \$1,187,683.99, and new silver dollars \$5,443,436.13, or in new subsidiary silver coin \$5,820,159.16.

Of the subsidiary silver coinage, \$5,962,141 were coined from worn and uncurrent silver coin transferred from the Treasury for recoinage, and \$520,663 from silver purchased under provisions of section 3526, Revised Statutes, for the subsidiary silver coinage, on which latter the seigniorage was \$286,311.22.

Silver balances.

The balance of silver bullion on hand at the mints for the coinage of silver dollars, subsidiary silver coins, and for payment of deposits of silver bullion in fine bars, July 1, 1898, was :

Items.	Fine ounces.	Cost.
Purchased under act of July 14, 1890.....	107, 701, 936. 56	\$97, 407, 490. 82
For subsidiary silver coinage at mints	1, 041, 122. 64	1, 356, 316. 97
For subsidiary silver coinage at assay offices.....	201, 494. 06	123, 815. 17
At United States assay office, New York, for payment of deposits in fine bars.....	419, 951. 13	466, 612. 37
Total.....	109, 364, 504. 39	99, 353, 235. 33

Seigniorage.

Including the balances on hand at the mints July 1, 1878, the net seigniorage on the coinage of silver from that date to June 30, 1898, was \$88,182,815.37.

Minor coinage.

Of the minor coins manufactured during the year, \$1,148,238.81 were from new material and \$341,245.30 from old and uncurrent minor coins transferred from the Treasury for recoinage.

The amount of minor coins transferred for reissue was \$198,900.

The total amount of minor coins outstanding July 1, 1898, was \$27,311,402.01.

Bars manufactured.

During the fiscal year there were manufactured gold bars of the value of \$92,187,391.67, and silver bars, \$7,667,887.90.

Silver quotations.

The highest quotation for silver 0.925 fine during the year in the London market was 27½ pence, equal to \$0.60831 per ounce fine in United States money; the lowest quotation was 23½ pence, equivalent to \$0.51789. The average price for the year was 26¼ pence, equivalent to \$0.57675. The bullion value of the United States standard silver dollar, at the highest price for the year, was \$0.47040, and at the lowest, \$0.40055, and at the average price, \$0.44607.

The commercial ratio of gold to silver at the average price was 1 to 35.84.

The number of grains of pure silver at the average price that could be purchased with a United States silver dollar was 832.20, equivalent to 1.73 fine ounces.

Earnings and expenditures.

The expenditures necessary to maintain the various institutions connected with the Mint Service during the fiscal year were \$1,263,133.02.

The earnings from all sources during the same period were \$4,695,797.96, showing a surplus of earnings over expenditures of \$3,432,664.94.

Imports and exports.

The net imports of gold during the fiscal year were \$104,868,476, as against \$44,609,841 for the fiscal year 1897.

The net silver exports were \$24,822,146, as against \$32,636,835 for the previous fiscal year.

Industrial arts.

The value of gold and silver consumed in the industrial arts by the United States during the calendar year 1897 was: Gold, \$11,870,231; silver, coining value, \$11,201,150; a total of \$23,071,381.

There were consumed in new material, in the manufacture of these bars, gold, \$7,184,822; silver, \$9,200,497.

Metallic stock in the United States.

The total metallic stock in the United States on July 1, 1898, was Gold, \$861,514,780; silver, \$637,672,743; a total of \$1,499,187,523.

Production of gold and silver.

The estimated production of the precious metals in the United States during the calendar year 1897 was:

Metals.	Fine ounces.	Commercial value.	Coining value.
Gold.....	2,774,985	\$37,362,000	\$37,362,000
Silver.....	53,880,000	32,326,000	69,687,000

The estimated production of the precious metals in the world during the calendar year 1897 was:

Metals.	Fine ounces.	Commercial value.	Coining value.
Gold.....	11,489,291	\$237,504,800	\$237,504,800
Silver.....	123,086,060	108,637,700	236,730,800

World's coinage.

The total coinage of gold and silver by the various countries of the world during the calendar year 1897 was as follows:

Gold.....	\$437,719,345
Silver.....	167,760,297
Total.....	605,479,642

The total metallic stock and uncovered paper in the world, as estimated on January 1, 1898, was:

Gold.....	\$4,619,000,000
Full legal-tender silver.....	3,276,100,000
Limited tender silver.....	701,400,000
Total metallic stock.....	8,596,500,000
Uncovered paper.....	2,322,800,000
Grand total.....	10,919,300,000

Legislation recommended.

Wastage.—Section 3542 of the Revised Statutes limits the amount allowed for wastage by the operative officers in the Mint Service in the case of the melter and refiner to one-thousandth part of the gold and two-thousandths part of the silver, and in the case of the coiner to one-

half thousandth part of the gold and one-thousandth part of the silver, delivered to each. Experience has demonstrated that one-half of this allowance would be ample to cover the necessary loss involved in their operations upon these metals. It has previously been suggested that the legal allowance be reduced accordingly, and the recommendation is repeated.

Foreign coin.—The amount of foreign gold coin deposited at the mints and assay offices during the year was \$47,210,078. Under the law these coins can not be paid out again, but must be melted. If the Secretary of the Treasury were permitted, in his discretion, to hold these deposits, he could frequently use them to supply the demand for gold for exportation, instead of delivering domestic coins or bars. Our own coin frequently goes abroad and remains for years in foreign treasuries. There is no reason why every foreign coin received at our Treasury should be imperatively required to be melted.

Silver coinage.—The only provision of law now existing by which any increase in the stock of fractional coin in the country can be made is that (sec. 3545, Rev. Stat.) authorizing the purchase of the small amount of silver contained in and separated from gold deposits.

The amount of silver thus obtained last year from gold deposits was 184,595.39 fine ounces, which would be sufficient to coin about \$255,000 of our fractional coin. This is wholly inadequate to meet the actual demand. There has been in the past a large stock of fractional coin in the Treasury, accumulated after the resumption of specie payments. During the period of paper money our stock of silver coin was exported principally to Central and South American countries, where it passed at its face value; but upon resumption of specie payments and the passage of the act of June 9, 1879, providing for the redemption of fractional silver at its face value, these coins returned in such quantities that, with the new coinage executed, the fractional silver became redundant and accumulated in the Treasury. For the last ten years the country has been absorbing that stock at the rate of from \$1,500,000 to \$2,000,000 per year, and this year the demand has been exceptionally strong. The amount of fractional silver coin held by the Treasury July 1, 1897, was \$16,201,960; on July 1, 1898, \$12,070,690. This stock has, at present, November 18, been reduced to \$7,122,506, much of which is so worn as to be unfit for circulation.

The amount available, distributed among the several subtreasuries, gives but small stock to each, and some denominations are exhausted. The Secretary of the Treasury should be authorized to recoin this uncurrent stock, and any such coin which may hereafter accumulate in the Treasury, the difference between its face value and the new coin it will make to be paid out of any moneys in the Treasury not otherwise appropriated. Further provision should be made to add to the stock of fractional coin, and to that end it is suggested that the Secretary of the Treasury be authorized to use any silver bullion now in

the Treasury for the coinage of such denominations as may be required from time to time to meet the demand from the different sections of the country. With an ever-increasing population, which will be added to in the near future by the acquisition of additional territory, the demand for fractional silver coin will be such as to make it essentially necessary that the stock should be increased.

Discontinuance of Carson mint and St. Louis assay office.—The total deposits of gold at the Carson mint during the last fiscal year were of the value of only \$530,438.87. The expense of conducting the institution was \$37,578.41, in addition to which the Government paid the express charges on the bullion to the San Francisco mint in preference to conducting coinage operations at Carson with so small a supply. The cost of maintaining the institution was therefore above 7 per cent of the value of the gold handled there. The total gold product of Nevada in the calendar year 1897 was \$2,976,400, from which it appears that four-fifths of the product of that State are more conveniently deposited elsewhere than at Carson, and it may be inferred that the remainder might go to other places without serious inconvenience to the producer. The deposits now made at Carson could be received and treated at the San Francisco mint without increasing the expense of the latter institution to exceed \$1,000 per year. It is, therefore, recommended that the mint at Carson be discontinued. If it is considered desirable to continue an assay office there, and the institution can be relieved of the care of the silver dollars now on storage in it, the annual outlay can be reduced to about \$12,000.

The assay office at St. Louis received during the last fiscal year gold deposits amounting to \$105,960.98, and in the previous year \$97,938.26. In each case old jewelry furnished one-half of the sum. The office is scarcely of sufficient importance to the mining industry or to the general public to warrant the expense of maintaining it, which last year was about \$4,700. The saving which might be made by abolishing this office and the mint at Carson would assist in meeting the new outlay incurred by establishing an office at Seattle.

Building for Seattle assay office.—The assay office at Seattle, during the first four months after opening for deposits, has received \$5,478,550 worth of gold. It is probable that it will be one of the most important offices of the Mint Service. It is now located in a rented building, without such provisions for the safe-keeping of treasure as ought to be provided. It is, therefore, recommended that Congress provide for the erection of a suitable building there for the assay office. An appropriate building can be provided at a cost of not over \$50,000.

Deficiencies in the bullion accounts of the mints.—Attention is respectfully called to the deficits in the bullion accounts of the mints at San Francisco, Philadelphia, New Orleans, and Carson, amounting in the aggregate to \$530,681.67.

The deficits in the accounts of the mint at San Francisco amounted

to \$416,587.90. Of this sum, \$152,327.03 occurred in 1856, and the remainder, \$264,260.87, between 1864 and 1871, all arising from excessive wastage of the operative officers, loss on sale of sweeps, annual assay coins being used in the purchase of supplies, and embezzlement of employees.

The amount of the deficit in the accounts of the mint at New Orleans is \$25,000, and is alleged to be due to the destruction of that sum in currency by fire in the cashier's vault in June, 1893.

The deficit in the accounts of the mint at Philadelphia is \$13,543.82. Of this sum, \$12,810.82 is a balance of gold bullion embezzled by the weigh clerk in 1893, not recovered, and \$733, a shortage found in the account of silver dollars on storage.

The deficit in the bullion accounts of the mint at Carson is \$75,549.75, and is due to the embezzlement of that sum by former employees in the melter and refiner's office, and was effected by the abstraction and substitution of metal of low fineness in gold for metal of a higher fineness.

The weigh clerk of the mint at Philadelphia, guilty of embezzling gold bullion, and the assistant melter and refiner and the silver dissolver at the Carson mint are now undergoing terms of imprisonment for their crimes.

These deficiencies are classed as unavailable assets. Their designation, year after year, as assets of any kind is objectionable. The amounts they represent are gone beyond reasonable possibility of recovery. It does not comport with the accuracy which should characterize good bookkeeping and well-ordered accounts and the example of precision which the Government should at all times maintain that these so-called assets, which are not such in any sense of the word, should be kept on the books for periods varying from five to more than forty years. It is recommended that Congress relieve the Treasurer of the United States and the respective mints from carrying the amount of these deficits in their accounts.

BUREAU OF ENGRAVING AND PRINTING.

If any justification were needed for the maintenance of an establishment of this kind in connection with the Treasury Department, it was fully supplied by the prompt manner in which the Bureau furnished the stamps and securities required under the war-revenue act. This act was approved June 13, 1898, and took effect immediately upon its passage as to the change of tax on beer, tobacco, cigars, cigarettes, and snuff, thus practically destroying the three-months' stock of stamps in the hands of collectors of internal revenue and the Commissioner of Internal Revenue, besides completed and incompleted work in the Bureau. Stamps for issue under the new act were delivered to the Commissioner of Internal Revenue by the Bureau on the morning of the 14th of June, 1898. As to the stamps for special taxes, for documents, for

medicines, and for mixed flour, the law allowed but seventeen days for the engraving and printing and distribution thereof. Within this time the Bureau had furnished a sufficient number of stamps to supply the immediate demands of the public, and by August 1, 1898, had furnished all that were required by law as a reserve stock in the hands of collectors and the Commissioner of Internal Revenue. By July 1, 1898, the Bureau was delivering 20,000,000 documentary and proprietary stamps alone daily, and by September 17, 1898, the Commissioner of Internal Revenue had ordered their delivery stopped.

The Bureau was equally as prompt in the delivery of the bonds required under this act, supplying the several denominations in quantities required by the Department and upon the dates set for the delivery of the same.

The amount of work required by the exigencies existing could only have been executed within the time allotted by extraordinary exertions. It was fortunate that the Government had an establishment for the execution of this work so thoroughly equipped as the Bureau, under the supervision of its own officers, who were responsible to the Secretary of the Treasury for the prompt and efficient performance of duty. Had the Department been required to procure the stamps and securities from private parties, it would not have been able to control the work to the extent it did, and it is believed would not so promptly have received the needed stamps and securities.

The officers and employees of the Bureau are entitled to the thanks of the Department for the exertions made in this emergency. Many of the expert employees of the Bureau, whose services could not be duplicated, cheerfully worked from sixteen to eighteen hours a day.

In addition to the special service rendered, as above described, the Bureau furnished, in an economical manner, the securities and stamps required in the transaction of the regular business of the Department.

The recommendation made in my last annual report, that Congress make provision for the entire expense of the work of the Bureau by direct appropriations, instead of, as at present, requiring a part of them to be paid by transfer of funds from other appropriations on bills rendered, is renewed.

It is desired to emphasize the necessity for an appropriation for a substantial brick outbuilding for the Bureau, to take the place of the temporary wooden sheds now used. This matter has heretofore been called to the attention of Congress, and full explanation of the necessity for the appropriation has been made in the annual reports of the Secretary for a number of years.

PUBLIC MONIES.

The monetary transactions of the Government have been conducted through the Treasurer of the United States, 9 subtreasury officers, and

194 national-bank depositaries. The amount of public moneys held by them on June 30, 1898, including those to the credit of the Treasurer's general account and United States disbursing officers, was \$38,743,017.17, an increase since June 30, 1897, in amount of holdings of \$22,784,283.35.

Since the beginning of the present fiscal year deposits on account of the new 3 per cent war loan have been received to the amount of \$200,000,000, and in order to avoid a dangerous stringency which might be created by a too-rapid absorption of funds into the Treasury, a large number of national banks were designated, under section 5153, Revised Statutes, as depositaries of public moneys, and public funds deposited therewith temporarily, thereby increasing the holdings of such depositaries to an amount exceeding \$90,000,000.

NATIONAL BANKS.

During the existence of the national banking system up to the close of the year ended October 31, 1898, 5,151 national banks were organized. The number in operation is 3,598. Of the closed associations, 1,194 were placed in voluntary liquidation by the shareholders, and 359, insolvent, in charge of receivers. On October 31, 1897, there were in active operation 3,617 associations. During the past year 56 were organized, 69 placed in voluntary liquidation, and 7 failed, including one of the banks in liquidation, above referred to, making a net reduction during that period of 19 banks.

The authorized capital stock of the banks on October 31, 1898, was \$624,552,195; the circulation outstanding, \$239,546,281, of which \$210,045,456 is secured by bonds and \$29,500,825 by lawful money deposited with the Treasurer of the United States on account of liquidating and insolvent associations, and those reducing circulation. A comparison of the circulation account on October 31, 1898, with October 31, 1897, shows an increase of \$9,582,771 in the total amount of circulation outstanding, and of \$6,119,776 in circulation secured by bonds.

The capital of the 56 banks organized during the past year aggregates \$9,665,000. Geographically, the Middle States lead both in the number of banks and the aggregate capital, viz, 22 and \$3,960,000, respectively. Seven were organized in Ohio, 6 in Iowa, 5 in Illinois, 2 in Missouri, and 1 each in Indiana and Wisconsin. In the aggregate amount of capital the Pacific States are second. Two banks in California were capitalized in the aggregate for \$3,500,000, and the new and first bank in Alaska for \$50,000. Sixteen associations were formed in the Eastern States, with an aggregate capital of \$1,185,000; Pennsylvania leading with 8, followed by New York, 4; New Jersey, 2; Delaware and Maryland, 1 each. In the Southern division, 8 banks, with capital of \$620,000, were organized; Texas leads with 4, and 1 bank was organized in each of the States of Virginia, North Carolina, South Carolina, and

Kentucky. The banks created in the Western States number 6, and are capitalized for \$300,000. Three of these banks are in the Indian Territory, 2 in Kansas, and 1 in Oklahoma. The only bank organized in the New England States is located in New Hampshire, and has a capital of \$50,000.

Since July 12, 1882, the date of the passage of the act providing for the extension of the corporate existence of national banks, the charters of 1,670 have been extended, their capital aggregating \$407,531,115. In the past year the corporate existence of 20 associations, with capital aggregating \$2,145,000, was extended. Three associations, the corporate existence of which expired, liquidated, although two of them reorganized under different titles. During the coming year 22 banks, with capital amounting to \$3,155,000, will reach the close of their corporate existence. The capital and circulation of the 1,134 banks, the charters of which will expire during the ten years ending with 1908, amount, respectively, to \$162,418,150 and \$44,293,753.

The capital of the 69 banks placed in voluntary liquidation during the year, exclusive of that of the one subsequently declared insolvent, amounted to \$12,509,000, and the capital of the 7 insolvent associations \$1,200,000.

The last reports of condition of the 3,585 national banks, made September 20, 1898, show that the aggregate resources were \$4,003,511,044.87, an increase since October 5, 1897, of \$298,377,337.16. Loans and discounts, including overdrafts, have increased \$105,743,496.64, and they now aggregate \$2,172,519,610.54. Government securities on hand and deposited with the Treasurer of the United States to secure circulation and public deposits amount to \$358,140,277, an increase of \$80,904,357. Gold holdings have increased \$54,775,318.33, but, owing to the reduction of the amount of currency certificates, the net increase in amount of specie and other lawful money is but \$31,839,827.34, the total currency held amounting to \$420,722,458.39. The banks' individual deposits have risen to \$2,031,454,540.29, an increase during the year of \$178,105,411.79. The surplus and profit accounts have increased \$5,818,205.60. The reduction of 25 in the number of reporting banks is accompanied by a reduction of \$9,970,200 in capital and \$4,436,904.50 in circulation.

The number of banks and capital stock in each geographical division, as shown by the reports on September 20, are as follows:

Geographical division.	No. of banks.	Capital.
New England States.....	582	\$154,781,620
Eastern States.....	954	192,896,875
Southern States.....	537	64,592,200
Middle States.....	1,041	158,138,100
Western States.....	848	81,544,100
Pacific States.....	123	20,085,000
Total	3,585	621,517,895

The aggregate resources of the 5,145 banks and banking institutions incorporated under State authority, including those of 758 private

banks and bankers, amount to \$4,631,328,357; loans and discounts, \$2,480,874,360; and deposits, \$3,664,797,296. Combining these amounts with similar items in the national bank statements, July 14, 1898, the following results are shown: Aggregate resources, \$8,609,003,802; loans and discounts, \$4,632,632,015; and deposits, \$5,741,023,872.

LOANS AND CURRENCY.

The interest-bearing debt July 1, 1897, included unmatured United States bonds outstanding in the amount of \$847,320,000. No material change appeared in the debt statements in the fiscal year ended June 30, 1898, but on June 13 a circular was published inviting public subscriptions for \$200,000,000 3 per cent bonds authorized by the act of June 13, 1898.

The public response to this invitation was not confined to any section of the country, and during the thirty days prescribed in the circular as the period for subscriptions there were received 232,224, of \$500 and less, accompanied by full payment for the bonds, and over 88,000, in sums greater than \$500, accompanied in each instance by a deposit of 2 per cent of the amount subscribed. The total of subscriptions of \$500 and less was \$100,444,560, and the total in greater amounts than \$500, including certain proposals guarantying the loan, amounted in the aggregate to more than \$1,400,000,000.

As provided by the circular, the allotment of bonds to subscribers of amounts greater than \$500 began immediately upon the close of the books July 14, the smallest subscriptions being first allotted until those of \$4,400 and less had been reached. There was a residue, ascertained to be about two million and a half dollars, which was allotted pro rata among the subscribers of \$4,500, each subscriber for that amount being awarded the sum of \$1,300. On page LXXX will be found a statement showing the number of subscribers, by groups, for amounts over \$500, and \$500 and less.

The bonds were dated August 1, 1898, and their preparation was carried on as rapidly as possible. Soon after that date the Department began their delivery, subscribers for \$500 and less being the first to receive their bonds substantially in the order of the receipt and acceptance of their subscriptions. The delivery of the bonds to subscribers of this class was practically completed about the 1st of September, though there are still some undelivered, owing to incomplete address or some other irregularity not yet adjusted.

Before the delivery of the bonds to subscribers of \$500 and less had been completed, the Department began the delivery on account of greater subscriptions. This has continued to the present time, and is still in progress, as subscriptions amounting to about \$2,000,000 are still in part unpaid under that provision of the circular of June 13 which provided for payments in installments of 20 per cent at intervals of forty days.

The changes in the amounts of the several kinds of money in the United States, outside the Treasury, between November 1, 1897, and November 1, 1898, are shown in the following table. The estimated population of the United States November 1, 1897, was 73,461,000, and the per capita supply of money outside the Treasury was \$23.23. The estimated population and per capita supply of money November 1, 1898, were 75,059,000 and \$24.87, respectively.

Comparative statement showing the changes in circulation.

	In circulation Nov. 1, 1897.	In circulation Nov. 1, 1898.	Decrease.	Increase.
Gold coin.....	\$539, 273, 953	\$649, 846, 727	.....	\$110, 572, 774
Standard silver dollars.....	60, 196, 778	63, 437, 355	.....	3, 240, 577
Subsidiary silver.....	63, 432, 929	68, 878, 952	.....	5, 446, 023
Gold certificates.....	36, 814, 109	35, 338, 909	\$1, 475, 200	
Silver certificates.....	372, 838, 919	391, 177, 575		18, 338, 656
Treasury notes, act July 14, 1890.....	101, 759, 955	96, 569, 780	5, 190, 175	
United States notes.....	258, 996, 998	306, 301, 620		47, 304, 622
Currency certificates, act June 8, 1872.....	48, 285, 000	20, 055, 000	28, 230, 000	
National bank notes.....	225, 134, 263	234, 969, 964		9, 835, 701
Totals.....	1, 706, 732, 904	1, 866, 575, 782	34, 865, 375	194, 738, 253
Net increase.....				159, 642, 878

FOREIGN COMMERCE.

The foreign commerce of the fiscal year 1898 in many respects has been phenomenal. The exportations of the products of both field and factory exceeded in value those of any preceding year, and the grand total of exports was the largest ever recorded. For the first time in the history of our foreign commerce, the year's exportations averaged more than \$100,000,000 per month, the total being \$1,231,482,330, against \$1,050,993,556 in 1897 and \$1,030,278,148 in 1892, no other years having reached the billion-dollar line.

Of our domestic exports, the value of agricultural products was \$853,683,570, surpassing by \$54,355,338 the highest record ever before made, that of 1892. Our manufacturers also made their highest record of exports, those for the year being \$290,697,354, against \$277,285,391 in the preceding year. For the first time also in the history of our foreign commerce, the exports of domestic manufactures were greater than the imports of foreign manufactures, while the total exports of the year were twice as great as the total imports—a condition heretofore unknown, the trade balance in our favor being more than twice as great as that of any former year. Nearly all branches of the great manufacturing industries shared in this increase of the export trade, particularly manufactures of iron and steel, leather, boots and shoes, and mineral oils, the principal exception being cotton goods, the demand for which was somewhat reduced by the fact that certain countries formerly buying our manufactured goods are now buying our raw cotton for use in their own factories. Nearly all classes of the great agricultural products made their highest record of exports in the past year. The value of the wheat and flour exported was greater than in any preceding year,

except 1892; the quantity of cotton, corn, and oats surpassed in each case that of any preceding year, and the exports of meat and dairy products, grouped under the general head of provisions, exceeded in value those of any former year.

The prices realized on nearly all important articles of export were higher than in the preceding year, the notable exceptions being cotton and mineral oils, in each of which the production in the United States, the world's chief producer of these articles, has been in the past few years phenomenally large, thus affecting the prices abroad as well as at home.

In importations, the year has shown an equally remarkable record, the value of foreign imports being less than in any previous year, with a single exception, 1880, though the population has increased 50 per cent since that time. The total imports were but \$616,049,654 in value, against \$764,730,412 in the preceding year, and \$779,724,674 a year earlier. The falling off was almost entirely in manufactures and articles of food. The importation of woolen manufactures was \$14,823,771, against \$49,162,992 in the preceding year; of cotton goods, \$27,267,300, against \$34,429,363 in 1897; of manufactures of iron and steel, \$12,626,431, against \$16,094,557 in the preceding year; of earthenware and china, \$6,687,360, against \$9,977,297 a year earlier; of glass and glassware, \$3,782,617, against \$5,603,868 in 1897; and of tin plate, \$3,809,148, against \$5,344,638 in the preceding year.

The year's record of the imports and exports of the precious metals was also an unusual one. The importations of gold were greater than in any preceding year in the history of the country, and the exports smaller than in any year in the present decade, making the net importations the largest ever known. The total imports of gold were \$120,391,674 and the exports \$15,406,391, the net imports being \$104,985,283, the largest in any preceding year being \$97,466,127 in 1881, while on only twelve previous occasions since 1850 have the year's imports of gold equaled the exports. The importation of silver, most of which comes into the country in lead ore and base bullion, amounted to \$30,927,781 in value, against \$30,533,227 in 1897 and \$28,777,186 in 1896, while the exportation of the year amounted to \$55,105,239 in value, against \$61,946,638 in the preceding year.

This satisfactory condition of our foreign trade extended to our commerce with practically every nation and all the great geographical divisions. Our sales to Europe alone increased \$160,420,601, while our purchases from that section of the globe decreased \$124,258,514; and to all the great divisions, except Oceanica, there was an increased sale, and from all, except Asia and Oceanica, decreased imports. Our exports to Asia show a gratifying gain, those of 1898 having been \$44,707,791, against \$25,630,029 in 1896 and \$11,645,703 in 1880, thus having quadrupled since 1880, and nearly doubled within two years.

The following table shows the domestic exports of the fiscal year by classes, compared with those of 1896 and 1897 :

Domestic exports, according to sources of production.

Classes.	Year ended June 30—		
	1896.	1897.	1898.
Agriculture.....	\$569,879,297	\$683,471,139	\$653,683,570
Manufactures.....	228,571,178	277,285,391	290,697,354
Mining.....	20,045,654	20,804,573	19,410,707
Forest.....	33,718,204	40,489,321	37,900,171
Fisheries.....	6,850,392	6,477,951	5,435,483
Miscellaneous.....	4,135,762	3,479,228	3,164,628
Total.....	863,200,487	1,032,007,608	1,210,291,913

The following shows the importations by classes, compared with those of 1896 and 1897 :

Imports by classes.

Classes.	Year ended June 30—		
	1896.	1897.	1898.
Free of duty :			
Articles of food and live animals.....	\$123,674,270	\$124,012,968	\$105,072,254
Articles in a crude condition for domestic industry.....	136,417,181	194,564,240	155,261,519
Articles manufactured—			
For mechanic arts.....	29,854,940	29,864,421	17,391,491
For consumption.....	20,495,034	24,750,275	9,241,512
Articles of voluntary use, luxuries, etc.....	9,315,045	8,746,339	4,457,399
Total free of duty.....	369,757,470	381,968,243	291,414,175
Dutiable :			
Articles of food and live animals.....	113,350,775	121,153,211	76,523,984
Articles in a crude condition for domestic industry.....	22,951,536	20,362,366	49,205,666
Articles manufactured—			
For mechanic arts.....	64,878,779	57,309,091	52,576,492
For consumption.....	124,778,005	109,624,851	73,339,175
Articles of voluntary use, luxuries, etc.....	84,006,109	74,362,631	72,995,162
Total dutiable.....	409,967,204	382,792,169	324,635,479
Free and dutiable :			
Articles of food and live animals.....	237,025,045	245,166,179	181,601,238
Articles in a crude condition for domestic industry.....	209,368,717	214,916,625	204,467,185
Articles manufactured—			
For mechanic arts.....	94,733,719	87,173,512	69,967,968
For consumption.....	145,274,039	134,375,126	82,570,687
Articles of voluntary use, luxuries, etc.....	93,323,154	83,098,970	77,452,561
Total imports.....	779,724,674	764,730,412	616,049,654
Per cent of free.....	47.4	49.1	47.80
Duties collected on merchandise.....	197,013,506	172,760,361	145,438,385

The following tables show the imports and exports of the last fiscal year by geographical divisions, compared with 1896 and 1897 :

Imports by geographical divisions.

Geographical divisions.	Year ended June 30—		
	1896.	1897.	1898.
Europe.....	\$418,639,121	\$430,192,205	\$305,983,691
North America.....	126,877,126	105,925,053	91,375,807
South America.....	108,828,462	107,389,405	92,091,694
Asia.....	89,592,318	87,294,597	92,594,593
Oceania.....	24,614,668	24,400,439	26,859,230
Africa.....	11,172,979	9,529,713	7,193,639
Total.....	779,724,674	764,730,412	616,049,654

Exports by geographical divisions.

Geographical divisions.	Year ended June 30—		
	1896.	1897.	1898.
Europe.....	\$678,043,753	\$613,365,644	\$678,806,348
North America.....	116,567,496	124,968,461	139,627,841
South America.....	36,397,671	33,768,646	33,821,701
Asia.....	25,630,029	30,374,905	44,707,791
Oceania.....	17,197,229	22,662,773	23,003,022
Africa.....	13,870,780	16,963,127	17,515,730
Total.....	892,606,968	1,060,993,556	1,231,482,330

Distribution of the commerce of the United States, by leading countries and grand divisions of the globe, during the year ended June 30, 1898.

Countries.	Exports.			Imports.	Total exports and imports.	Excess of exports or imports.
	Domestic.	Foreign.	Total.			
United Kingdom.....	\$534,398,302	\$6,542,308	\$540,940,606	\$108,945,186	\$649,885,790	*\$481,995,420
Germany.....	153,171,100	1,668,872	155,039,973	69,697,378	224,737,350	*85,342,594
France.....	93,790,717	1,668,873	95,459,590	52,730,848	148,190,438	*42,728,442
Netherlands.....	63,417,547	856,977	64,274,524	12,326,065	76,599,589	*51,749,469
Belgium.....	47,466,600	152,601	47,619,201	8,741,836	56,361,037	*38,877,376
Italy.....	23,067,997	222,861	23,290,858	20,332,637	43,623,496	*2,956,221
Other Europe.....	46,890,515	291,230	47,181,795	32,960,793	80,142,547	*14,221,043
British North American Possessions.....	78,621,365	6,268,464	84,889,819	32,242,601	117,132,420	*52,647,218
West Indies.....	25,580,303	862,591	26,442,894	32,070,631	58,513,525	†5,627,737
Mexico.....	30,405,962	900,987	31,306,949	19,004,863	40,211,802	*2,202,076
Central American States.....	4,819,467	500,691	5,320,158	7,268,490	12,588,648	†1,946,222
Other North American States.....	1,721,363	46,668	1,768,031	792,222	2,560,253	*976,799
Brazil.....	13,262,951	54,065	13,317,016	61,750,869	75,067,405	†48,453,333
Argentina.....	5,945,846	480,224	6,426,070	5,915,879	12,344,949	*513,191
Venezuela.....	2,704,908	41,353	2,746,261	7,722,564	10,468,825	†4,976,303
Other South American States.....	11,117,260	212,074	11,329,334	16,702,882	28,032,216	†5,373,548
Japan.....	20,854,689	30,852	20,885,541	23,223,610	45,609,151	†4,836,069
China.....	9,992,070	824	9,992,894	20,338,436	30,319,330	†10,326,436
Other Asia.....	14,236,354	33,502	14,329,856	47,044,547	61,373,908	†2,715,191
Hawaiian Islands.....	5,773,672	133,433	5,907,105	17,187,380	23,094,585	†11,290,225
British Australasia.....	15,630,987	89,876	15,630,863	5,578,898	21,188,761	*10,080,363
Other Oceania.....	474,588	11,416	486,004	4,092,362	4,578,366	*8,606,344
Africa.....	17,494,860	20,870	17,515,730	7,193,639	24,709,369	*10,322,091
Total.....	1,210,291,913	21,190,417	1,231,482,330	616,049,654	1,847,531,984	*615,432,676

* Excess of exports.

† Excess of imports.

The following shows the principal features of the foreign commerce during the fiscal year 1898, compared with 1897:

Principal features of foreign commerce.

	1897.	1898.	+, increase; -, decrease.
Imports:			
Merchandise: Free.....	\$381,988,243	\$391,414,175	—\$90,524,068
Dutiable.....	382,792,169	324,636,479	+56,156,690
Total.....	764,780,412	616,049,654	—148,680,758
Per cent dutiable.....	50.1	52.7	
Gold.....	85,014,780	120,391,674	+35,376,894
Silver.....	30,538,227	30,927,781	+389,554

Principal features of foreign commerce—Continued.

	1897.	1898.	+, increase. -, decrease.
Exports:			
Merchandise: Domestic.....	\$1,082,007,608	\$1,210,291,918	+\$178,284,310
Foreign	18,985,953	21,190,417	+ 2,204,464
Total	1,050,993,556	1,231,482,330	+ 180,488,774
Gold	40,861,590	15,406,391	- 24,955,189
Silver	61,946,638	55,105,239	- 6,841,399
Imports of merchandise for consumption.....	789,251,080	567,153,700	- 202,097,380
Duties paid.....	172,760,861	145,438,885	- 27,321,976
Ad valorem duties:			
On dutiable.....per cent....	42.41	48.86	.....
On free and dutiable.....do.....	21.89	24.77	.....

CUSTOMS.

Reorganization of districts.

Attention is invited to the recommendation contained in my last annual report for the reorganization of customs districts and the discontinuance of useless ports. Every business consideration demands that a reorganization of these districts should be effected, and the recommendation is renewed.

Special agents.

During the last fiscal year the special agents have examined the conduct of customs business and the personnel of the Customs Service, as prescribed in section 2649, Revised Statutes, in 86 customs districts and independent ports. They have recommended many reductions in the expense of maintaining the Customs Service, some of which have already been approved by the Department, while others are still under consideration. The special agents are usually called upon to report on proposed increases in the expenses of the Service, and their reports aid greatly in economical administration. Attention is invited to the report of the Supervising Special Agent, where a detailed statement of the work accomplished by the special agents will be found.

Operations of the tariff.

Domestic industrial enterprises are unquestionably benefited by the tariff act of 1897, designed as well to encourage home industries as to increase the revenues of the Government. By reason of the fact that importers, anticipating the passage of the act referred to, provided themselves with large stocks of merchandise of every description, the tariff of 1897 can not be regarded as fairly tested by the receipts immediately following its passage. As an illustration of the correctness of this view, it may be stated that during the first four months of the fiscal year 1899 the receipts from customs (exclusive of the duty on tea provided by the

war-revenue law) amounted to \$62,776,080, which is \$4,633,026 in excess of the receipts for a similar period in any year since 1892.

A reciprocal commercial agreement has been entered into between the United States and France, under the provisions of section 3 of the tariff act of 1897, and negotiations with a similar object in view are in progress with other countries.

Undervaluations.

Special efforts have been made during the past year to detect and prevent undervaluations, and it is believed that much has been accomplished in that direction. The practice which many foreign manufacturers and wholesale dealers have resorted to of consigning their goods to branch houses or agencies in this country at prices, in many instances, far below the actual market value, has proven so profitable that in certain lines of goods sales have been refused to our American merchants in the foreign market, and they have been compelled to buy of the consignee of the foreign house in this country. During the past year a special officer of the Department was sent to Europe for the purpose of thoroughly investigating the methods of manufacture, cost of production, and the manner of invoicing a certain line of goods sent to this country almost exclusively on consignment, and which, there was reason to believe, was largely undervalued on importation, but concerning which accurate data could not be obtained here. As a result of his inquiries, it was ascertained that the practice of invoicing the goods at prices far below the actual foreign market value was general among manufacturers and shippers, and in a number of instances the goods were invoiced below the cost of production. Efforts are being vigorously made to prevent the abuses resulting from the system above referred to, which not only entails loss to the revenue, but results in injury to honest importers.

Board of General Appraisers.

The Board of General Appraisers reports that during the past year its office received 16,969 protests on classification, 3,464 appeals to reappraisement by one general appraiser, 1,053 appeals to reappraisement by a board of three general appraisers, and 284 protests against rejection of teas, and has decided 19,213 protests on classification, 4,337 appeals to reappraisement, and 278 tea protests. The Board adds, in its report, that—

The habit of undervaluation is still persistent, especially in consigned merchandise. In our report for the eleven months ended October 1, 1895, we considered the subject of undervaluation exhaustively, quoting Secretary of the Treasury Fairchild in support of the proposition that the abuse was more prevalent fifteen years ago than at the date of the report cited. This may have been too sanguine a view, though we are still of the opinion that the evil is in process of ultimate

extinction, notwithstanding the fact that there are now pending consignment cases involving very large, if not entire, lines of merchandise, as in 1895, about which such wide differences of opinion regarding values exist as to render conflicting opinions inevitable. It follows that the question of the adjustment of values in reappraisement cases is the most difficult one in which the Board is called upon to act.

The Department divided the work of the General Board into two separate divisions or departments on October 22, 1897. These are known as the classification and reappraisement divisions.

The division of classification has decided over 19,000 protests in the past year, as against about 8,800 in 1897, and about 21,000 in 1896, when two Boards were in charge of this branch of the work.

The whole number of appeals taken from decisions of the Board to the United States circuit court for the southern district of New York since October 1, 1897, is 184, as against 122 for the period covered by the report of last year. Many of these appeals, however, are said to be upon like claims and contentions, having been thus taken to save the right of the appellants.

Where appeals are taken to the United States circuit court from a Board decision, under the provisions of section 15 of the act of June 10, 1890, other protests involving the same issues are, on the request of either party, placed on the file of "suspended cases," and kept there until these issues are finally settled by judicial determination. The number of suspended cases now pending is something over 35,000, as against about 40,000 in the year 1897. As many as about 4,000, however, involve but a single subject, and eight subjects cover as many as 12,000 or 13,000 of these protests.

The Board calls attention to the number of protests received during the first twelve months after the enactment of each of the tariff acts of 1890, 1894, and 1897, respectively. Leaving out the very large number involved in the constitutionality of the McKinley Act of 1890 (over 32,000), the date on which the Wilson Act of 1894 went into effect (over 3,600), and the time the Dingley Act of 1897 became operative (over 900), the Board summarizes as follows: Under act of 1890, 13,800 protests were filed; under act of 1894, 20,130; and under act of 1897, 12,149.

It will thus appear that customs litigation has apparently lessened under the operations of the tariff act of 1897.

ALASKA.

Sale of liquor.

The enforcement of the law governing the importation, manufacture, and sale of intoxicating liquors in the Territory of Alaska is so difficult, and the subject of so much importance to that rapidly developing country and to the Government, that it is treated of here at greater length than otherwise would be justified.

The law which regulates the introduction and sale of liquor in Alaska is found in section 1955 of the Revised Statutes, which authorizes the President to restrict and regulate, or to prohibit, its importation and use in the Territory, and in section 14 of the act of May 17, 1884, which continues in force the previous law, except as thereby modified, prohibits the importation, manufacture, and sale of intoxicating liquors in Alaska, except for medicinal, mechanical, and scientific purposes, and authorizes the President to provide for the enforcement of this act by regulations. The regulations at present in force are those dated, respectively, February 26, 1885, March 12, 1892, and June 24, 1898. The first provides that the manufacture of liquor within the district of Alaska shall be only for medicinal, mechanical, and scientific purposes, and upon a license from the governor. The second forbids the sale of liquor within the district except for the purposes above indicated, and only upon a license to be issued by the governor. The third forbids the shipment of liquor from the United States or its introduction into Alaska except upon a permit from the collector of customs at Sitka, and then only when the liquor is intended for medicinal, mechanical, scientific, or sacramental purposes. The authority of the collector to enforce all the liquor laws and regulations is derived from section 1957 of the Revised Statutes, as amended by section 14 of the act of May 17, 1884.

To prevent the shipment of liquors to Alaska in violation of law, officers of the Department at ports on the Pacific Coast carefully examine the cargoes and manifests of all vessels bound for Alaska and seize all liquors found intended for illegal introduction into the Territory. The collector of customs for Alaska has been active in seizing liquors illegally landed, which are exposed for sale in the Territory. He sent to Portland, Oreg., recently, in one shipment, for sale, over eighty tons of seized liquors. Because of the almost universal demand for liquor in that locality and the large profits to be derived from its sale, great quantities find their way into the district and are to be obtained in saloons.

Shipments of liquor are made from the United States under all manner of subterfuge—disguised as medicinal compounds, catchup, etc., inclosed in shipments of merchandise, hidden in the coal in steamers' bunkers, and even placed on board the ships, after they have cleared, by small boats which put out from shore at night. It is impossible to effectually prevent these practices without the use of swift seagoing vessels and a large additional force of employees.

The collector is virtually powerless to enforce the law restricting the introduction and sale of liquor within the Territory, by reason of the cooperation and sympathy of almost the entire population of Alaska with those who violate the law, and of the failure of juries in Alaska to indict and convict after discovery and arrests have been made. It has been reported to the Department that for a number of years not one convic-

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tion for violation of the liquor law was had in the courts in that district, and that a former district judge had stated openly, and while he was occupying that high office, that no jury in Alaska would convict any person who violated the law. Information has also been received that where customs officers have seized liquors in saloons and reported the facts to the United States attorney, the grand jury either failed to find true bills or the cases were compromised by the payment of small fines, and the liquor dealers resumed their business with fresh supplies. In view of the constant liability to seizure, but a small quantity of liquor is reported to be kept in the respective saloons, the main supply being carefully hidden and drawn from as occasion requires, so that a seizure by a customs officer means little to the saloon keeper.

The remedy for the situation, it is believed, may be found in the repeal of the present laws and the provision by Congress of a high-license system for the Territory. It has been demonstrated that the sale of liquor in Alaska can not be effectually prohibited under present regulations, by reason of the almost universal adverse public sentiment, and it would seem, therefore, the wiser course to confine it within such bounds as would insure its regulation by the Government.

Salmon fisheries.

Owing to the use of the vessels of the Revenue Cutter Service in the recent war with Spain, it was not possible to assign a revenue cutter to the work of inspecting the various salmon canneries of Alaska and of transporting from place to place the two agents authorized by law for that purpose. Notwithstanding this fact, these agents were enabled to visit, by use of the ordinary means of transportation, all the canneries, with the exception of six, to observe the methods used by the canners in taking fish, and to ascertain whether or not the supply of salmon was diminishing.

While it is too early at this time to furnish accurate statistics with regard to the salmon pack of last season, it is stated, in a preliminary report, by the agent for the fisheries that the output of the canneries will approximate one million cases, and will at least equal that of last year, and that, with the exception of Karluk River, the run of salmon has not diminished.

During the past year, acting under the authority contained in the act of June 9, 1896, fishing for salmon for commercial purposes was prohibited in Karluk River, it appearing that the supply of fish in that river was being rapidly exhausted.

In accordance with the suggestion in my last report that additional legislation was necessary for the proper protection of the salmon streams, a draft of a new law embodying such changes as were thought requisite to that end was prepared and submitted to Congress. The attention of Congress is again invited to this subject.

Seal herd.

Since the passage of the act of December 29, 1897, prohibiting the taking of fur seals by citizens or subjects of the United States, or the fitting out in the United States of any vessel for the purpose of taking seals in the waters of the Pacific Ocean north of the thirty-fifth degree of north latitude, there has been no pelagic sealing in the prohibited area by any vessels sailing under the flag of the United States. Since the passage of the above act only one American vessel has taken pelagic skins from the so-called Alaska herd, and as the vessel had cleared from this country prior to the passage of the act, and her log showed all skins taken south of the thirty-fifth degree, her catch of 1 male and 335 female skins was allowed entry at San Francisco.

The British sealing fleet, however, has continued its operations during the past year, both on the northwest coast and in Bering Sea. From the copy of the approved minutes of the Canadian privy council, transmitted to this Government in accordance with the provisions of the Paris award, it appears that 30 British sealing vessels operated on the northwest coast during the past spring, as compared with 32 British vessels sealing during the spring previous. The total catch during the spring of 1898 was 10,581, including a canoe catch by Indians of 526, as against 6,100 skins taken by the same fleet during the season of 1897, which number included a canoe catch of 1,018. This would give an average catch per schooner for the spring of 1898 of 335 skins, as against an average catch of 159 for each vessel during the spring of 1897, or an increased catch per vessel of over 100 per cent. The number of British vessels sealing in Bering Sea, or their catch there, during the past summer, is not known, the reports from the British Government upon that subject not having been received.

The reason for this greatly increased spring catch as compared with last year can not be found in an increase in the numbers of the Alaska herd of seals, but in the fact that, the former American fleet no longer operating, fewer vessels took seals within a given area. Indeed, the advance reports which have been received by the Department from Special Agent Murray, late in charge of the seal islands, and from Mr. C. H. Townsend, an assistant to the Commissioner of Fish and Fisheries, detailed to the seal islands during the past summer to note the condition of the rookeries, show a most apparent decrease in the number of seals frequenting the islands. From the report of Mr. Murray it appears that, owing to a scarcity of seals, only 18,047 young male seals could be killed out of the quota of 30,000 allowed, and that the number taken was secured only after every effort had been made to obtain the full quota. In 1897, 21,013 seals were killed on the islands and their skins accepted.

The only hope for the preservation of the Pribilof Islands herd of seals, it is believed, lies in the complete cessation of pelagic sealing. With this accomplished, and the breeding females allowed to bring

forth their young without molestation from deep-sea hunting, natural causes will operate to bring about a rehabilitation of the rookeries and restore a valuable industry to its former importance.

Certain questions having arisen as to the amount of the taxes, rental, and bonus due on the seal skins taken from the Pribilof Islands by the present lessee, the North American Commercial Company, suit was brought in the circuit court for the southern district of New York to recover the amount due for the year ended April 1, 1894. The claim of the Government was :

Annual rental	\$60,000.00
Revenue tax on 7,500 skins, at \$2.....	15,000.00
Per capita, at \$7.62½, on 7,500 skins.....	57,187.50
Total	132,187.50

The company claimed that it was entitled, under section 1962, Revised Statutes, to a reduction in the rent and per capita in proportion that the number of skins taken bears to 100,000. The case having been carried to the Supreme Court of the United States on appeal, that court sustained the contention of the lessee with regard to the reduction of the rental of \$60,000, but their claim that the bonus or per capita should be proportionately abated was rejected, and judgment in favor of the Government was rendered for \$76,687.50, representing the amount which the lessee should pay for the year ended April 1, 1894, with interest and costs.

Pending the decision in this case, the company offered each year as payment became due a sum equal to what it considered to be due under the lease. These offers were rejected. Since the decision the lessee has paid, in addition to the amount of the above judgment, the deferred payments for the years ended April 1, 1895-1898, both inclusive, based on the terms of the decision, amounting to \$836,374.32.

A demand has been made upon the company for the payment of \$78,860.05, representing interest on the deferred payments stated above, exclusive of the amount covered by the judgment of the Supreme Court. Payment of this interest is still under consideration by the lessee.

INTERNAL REVENUE.

The receipts from the several objects of taxation under the internal revenue laws for the fiscal years ended June 30, 1897 and 1898, were as follows :

Receipts from internal revenue, 1897 and 1898.

Objects of taxation.	Fiscal years ended June 30—		Increase.	Decrease.
	1897.	1898.		
Distilled spirits	\$82,008,542.92	\$92,546,999.77	\$10,538,456.85	
Manufactured tobacco.....	30,710,297.42	36,230,522.37	5,520,224.95	
Fermented liquors.....	82,472,162.07	89,515,421.14	7,043,259.07	
Oleomargarine.....	1,034,129.60	1,315,780.54	281,650.94	
Filled cheese.....	18,992.38	16,518.55		\$2,473.83
Miscellaneous collections.....	375,469.08	1,241,576.99	866,107.91	
Total	146,619,593.47	170,866,819.36	24,247,225.89	

The total cost of collection for the fiscal year ended June 30, 1898, was \$3,907,010.50; the total cost of collection for the fiscal year ended June 30, 1897, was \$3,848,469.49, showing an increase for the fiscal year ended June 30, 1898, of \$58,541.01.

The amounts given as receipts are those actually collected during the fiscal years mentioned, but in many cases the money collected on the last day of June is not deposited until the 1st day of July, thus causing a discrepancy between the collections and deposits for the year.

A detailed statement of the receipts and expenditures will be found in the report of the Commissioner of Internal Revenue.

The percentage cost of collection for the fiscal year ended June 30, 1898, was 2.29 per cent, as against 2.62 per cent for the fiscal year ended June 30, 1897.

The total production of distilled spirits, exclusive of fruit brandies, for the fiscal year ended June 30, 1898, was 80,762,213 taxable gallons; the total production for the fiscal year ended June 30, 1897, was 62,465,648 taxable gallons, showing an increase in production for the fiscal year just ended of 18,296,565 gallons. There were also produced 427,342 gallons of apple brandy, 33,680 gallons of peach brandy, 2,443,363 gallons of grape brandy, 181 gallons of pear brandy, 190 gallons of apricot brandy, 161 gallons of berry brandy, and 1,281 gallons of prune brandy, making a total production of 2,906,198 gallons from fruits during the year.

A further comparison of the two fiscal years shows an increase of 128,421 gallons in the production of apple brandy, an increase of 16,429 gallons in the production of peach brandy, an increase of 947,677 gallons in the production of grape brandy, a decrease of 409 gallons in the production of pear brandy, a decrease of 93 gallons in the production of orange brandy, an increase of 190 gallons in the production of apricot brandy, an increase of 48 gallons in the production of berry brandy, and an increase of 508 gallons in the production of prune brandy, for the fiscal year ended June 30, 1898, an aggregate increase of 1,092,771 gallons produced from fruits as compared with the previous fiscal year.

The quantity of distilled spirits gauged during the fiscal year ended June 30, 1898, was 287,522,075 gallons; the quantity gauged during the fiscal year ended June 30, 1897, was 246,096,921 gallons, making an increase for the year just ended of 41,425,154 gallons.

During the fiscal year ended June 30, 1898, 4,720 distilleries of all kinds were operated; for the preceding fiscal year 3,158 distilleries of all kinds were operated, a comparison showing an increase of 1,562 for the year just ended.

During the fiscal year ended June 30, 1898, there were produced 37,529,339 barrels of beer; the number of barrels produced during the fiscal year ended June 30, 1897, was 34,462,822, making an increased production for the year just ended of 3,066,517 barrels.

For the fiscal year ended June 30, 1898, the total receipts from the taxes on tobacco, cigars, cigarettes, snuff, etc., were \$36,230,522.37.

The receipts from the same sources for the fiscal year ended June 30, 1897, were \$30,710,297.42, showing an increase of \$5,520,224.95 for the year ended June 30, 1898.

PUBLIC BUILDINGS.

During the past year work has been prosecuted on 43 buildings, including extensions to buildings, etc., marine hospitals, and quarantine stations, of which 15 have been completed. No new buildings have been authorized since the last report, legislation enacted simply embracing extensions to the temporary post-office at Chicago, the improvement of the old custom-house, etc., at Detroit, Mich., and the extension of limit of cost of the United States post-office, court-house, and custom-house at St. Paul, Minn. The number of buildings, therefore, under the construction branch of this department is 384, classified as follows :

Completed and occupied buildings at date of last report	337
Completed and occupied since last report.....	15
In course of construction at date of last report.....	33
Commenced since last report.....	10
	43
Completed and occupied since last report, as above.....	15
	28
Buildings on which work has not yet been commenced.....	11
	391
Extension to buildings at Bridgeport, Conn., Little Rock, Ark., and Los Angeles, Cal., as per last report, to be deducted, and buildings already included in prior reports, New York court-house and post-office, law library, and approaches for Helena, Ark., Columbus, Ga., and Charleston, S. C.....	7
Total buildings under construction branch.....	384

The following statement shows the amount expended upon public buildings during the year ended September 30, 1898 :

For sites and construction of new public buildings.....	\$3,407,603.86
For repairs and preservation of public buildings.....	261,738.07
For heating apparatus for public buildings.....	100,975.59
For vaults, safes, and locks for public buildings.....	25,496.83
For plans for public buildings.....	2,894.80
Total.....	3,798,709.15

Since the date of the last report effect has been given to the requirement of the act approved February 20, 1893, in relation to securing competitive designs for public buildings, by inviting competition in designs for court-house and post-office, Norfolk, Va.; post-office, custom-house, etc., Camden, N. J.; immigrant station, Ellis Island, New York Harbor; and contracts have been entered into for the preparation of drawings, specifications, etc., forming the basis for the invitation of proposals for the erection of the buildings named.

Active building operations have as yet, however, been commenced on only one, that being the immigrant building at Ellis Island. It is

too early, therefore, to form any just opinion as to the probable results as to cost or successful administration. The accepted drawings for this building, however, were highly creditable, and displayed careful thought and study on the part of the successful architects.

Hall of records.

The necessity for a hall of records in this city, in which may be safely stored, against accident from fire, the large accumulation of valuable documents which now encumber the files of this and coordinate Departments, is again called to the attention of Congress. The Secretary of War, in 1878, called attention to the dangerous situation of records of great value in the Quartermaster-General's office.

At various times Congress has recognized the situation and has enacted legislation, the earliest being in the sundry civil bill, approved August 7, 1882, in which the Supervising Architect of this Department was directed to make a report to the following session of Congress in regard to the matter. The Supervising Architect, on January 17, 1883, reported in favor of a site known as "Armory Square," between Sixth and Seventh streets SW. Plans and specifications were prepared for the building on this square, and it was estimated that the probable cost would be \$1,036,054.

Under date of December 19, 1883, the President transmitted to Congress a communication from the Secretary of War, setting forth the necessity for a fireproof building, and renewed the recommendations of former years. An interval of nearly ten years then elapsed without any further action being taken, either by Congress or by the Executive Departments.

In April, 1896, the Secretary of the Treasury addressed letters to the Committees on Public Buildings and Grounds, referring to House Bill No. 7614, then under consideration in the House Committee, reiterating the necessity for the construction of such a building.

The act of Congress approved June 11, 1896, directed the Secretary of the Treasury to submit to Congress a plan giving the size and general characteristics of a structure to be used as a hall of records in this city. He was required to confer with the heads of the various Departments, and inquire into and report upon the suitability of a site for such a building on the public reservation at the intersection of Ohio and Louisiana avenues with Tenth and Twelfth streets, or any other grounds located in the city within a reasonable distance from the Departments.

January 7, 1897, a report from the Secretary of the Treasury was presented to the President of the Senate, intimating that the reservation mentioned was conveniently located as a site for the building. Final report could not then be made, however, by reason of the fact that questions had arisen concerning the character of the soil and the practica-

bility of securing satisfactory foundations. It was also necessary, in order to pursue the inquiry, that an appropriation be made for that purpose.

January 4, 1898, the Secretary of the Treasury addressed a letter to the Secretary of the Senate Committee on Public Buildings and Grounds, reporting on the Senate bill authorizing the acquisition of a site at the corner of Ohio avenue and Fifteenth street. It was said that until it could be definitely determined by tests, borings, etc., that the site at the intersection of Ohio and Louisiana avenues with Tenth and Twelfth streets was not available for the erection of a hall of records thereon, the Department did not feel justified in recommending the purchase of a site for such building. The proposed site at Fifteenth street and Ohio avenue seemed also to be somewhat remote when considered in connection with the Capitol and Interior Department.

January 14, 1898, the Secretary of the Treasury addressed a letter to the Speaker of the House, transmitting tentative plans for a building at the intersection of Ohio and Louisiana avenues with Tenth and Twelfth streets.

Before any definite conclusion is reached as to the location of the building, careful consideration should be given to the fact that locating the building on land at the intersection of Ohio and Louisiana avenues with Tenth and Twelfth streets would entail great expense for foundations, and would be most unfortunate, for the reason that that section of the city is subject, at intervals, to inundations.

The expressions of urgency so frequently met with in annual reports from the accounting officers justify the greatest insistency from the Treasury Department in its recommendations for a new and proper hall of records. It is a public necessity. The custody of the files of this and other Executive Departments is a matter involving most jealous care. The officials and employees are trained to look upon the preservation of records as a high duty. For many years the Treasury Department has kept its files in the Treasury building, but it finally became so engorged as to interfere materially with the working force, and it became necessary to secure another place of storage. A building at 1707 New York avenue has been leased. It is not fireproof, nor is it possible to obtain a fireproof building suitable for the purpose. In the event of the destruction of the records now stored therein, the Department would suffer irreparable loss. Even at this time, the fact that the records of 1833 and 1814 were burned is made apparent by frequent embarrassment to the public business. The Department trusts that a worse calamity may not prove more detrimental to its interests in the future.

DISTRICT OF COLUMBIA.

The net expenditures on account of the District of Columbia for the fiscal year 1898 were \$6,319,725.84. The net revenues deposited in the Treasury on this account for the same period were \$3,727,893.10.

Under the operations of the sinking funds, the net reduction of the bonded debt during the year was \$611,600, and of the annual interest charge, \$21,442.

The bonds of the old funded debt retired with the sinking fund for the water-stock bonds amounted to \$342,950, leaving a balance of \$50 uninvested. If a \$50 bond can be purchased with the unexpended balance, the bonds retired will equal in amount the water-stock bonds outstanding. The interest accumulations on the bonds retired with this sinking fund are available to pay interest on the water-stock bonds, and will amount during the fiscal year to \$17,985, while the total amount required for interest is \$24,010. The difference between these sums—\$6,025—is all that is required to be appropriated from the water fund for this account.

Under the authority contained in the District appropriation act approved March 3, 1897, the balance remaining on the 1st day of July, 1897, of the principal of the debt incurred for increasing the water supply was paid in full. The amount advanced by the United States during the fiscal year 1898 was \$300.21, one-half and the interest thereon to be charged to the District. During the same period there was repaid to the appropriation \$3,628.01, one-half and the interest thereon to be credited to the District. This leaves \$1,670.42 as the net amount due the District of Columbia at the close of the fiscal year 1898.

The District appropriation act approved June 30, 1898, authorizes and directs the Secretary of War to resume work on the Aqueduct tunnel, and reappropriates the balance remaining of the appropriations for increasing the water supply, to be advanced out of the revenues of the United States, and not subject to the conditions of the capital account created by the act of July 15, 1882, and also appropriates an equal sum out of the surplus general revenues of the District of Columbia. These appropriations were made immediately available.

Detailed information in regard to the affairs of the District of Columbia will be found in the report to be submitted by the District Commissioners, and by the Treasurer of the United States, *ex officio* commissioner of the sinking fund of the District of Columbia.

IMMIGRATION.

The report of the Commissioner-General of Immigration shows that 229,299 immigrants arrived during the year, a decrease, compared with the preceding fiscal year, of 1,533. The number of those debarred and refused landing was 3,229, as compared with 1,880 for the preceding year, and was composed of 417 alien-contract laborers, 2,261 paupers, 258 diseased persons, 1 idiot, 12 insane, 2 convicts, 79 assisted immigrants, and 199 who were returned within one year after their arrival, having become public charges.

More particular attention has recently been given to the cases of immigrants suspected of being afflicted with disease. During the fiscal

year ended June 30, 1897, only one immigrant was debarr'd as being afflicted with a "loathsome or dangerous contagious disease," while during the last year 256 were denied admission on that account. These exclusions have frequently resulted in the separation of families, the debarr'd immigrant being retained in the country to his death, while his relatives are permitted to journey to their destinations in this country. Having the prevention of this in view, and to establish a more efficient guard against the admission of "immigrants of dangerous contagious diseases," the Commissioner-General of Immigration suggests the expediency of examining immigrants at various ports of embarkation, instead of after their arrival in this country.

The recommendation that legislative provision be made whereby the Bureau of Immigration may be put in communication with State immigration organizations, with a view to effecting a better distribution of arriving immigrants, is approved. There is behind question a tendency on the part of immigrants toward the cities, just as there is such a tendency among our own rural population. A social problem involving relief to unemployed labor as congested centers of population may be partially solved by efforts directing immigrants to fields where their services may be in demand. This course will also lessen the likelihood of their becoming public charges.

The report also calls attention to the fact that some aliens have, for the purpose of obtaining naturalization papers, made false statements, and the Commissioner-General recommends that a suitable record be kept at the ports of arrival concerning each immigrant, a copy of which, in the form of a certificate, may be furnished, setting forth in detail particulars regarding the time of his arrival and personal characteristics by which he can be fully identified, such certificate to be used to establish his right to naturalization.

The same record would prove useful for the purpose of identifying aliens both in this country and when residing abroad and claiming the rights of American citizenship.

For extending the usefulness of the Immigration Service, it is recommended that the limitation be repealed that no greater sum shall be expended for the enforcement of the laws at any port than shall have been collected at said port from the head tax. This provision was justified by the old organization of the Immigration Service, when local affairs were carried on mainly through the instrumentality of State boards under contract with the Secretary of the Treasury. The Service has become so general now and is so firmly established under Federal jurisdiction that there seems to be no necessity for limiting the use of the immigration fund as now prescribed.

The attention of Congress is invited to the several recommendations of the Commissioner that the head tax be increased from \$1 to \$2, that the present system of examination at Canadian ports of immigrants destined to the United States be abandoned, and that certain

points on the Canadian border shall be designated as ports of entry, at which corps of inspectors shall be stationed and where alone immigrants through Canada may be admitted into this country. The consideration which Congress may be able to give to these recommendations may serve to determine fully the advisability of making the changes suggested.

That portion of the Commissioner-General's report which is devoted to receipts and expenditures shows that during the year the total receipts have amounted to \$326,644.47, while disbursements for the same period were \$275,809.32, leaving a surplus of \$50,835.15. There was expended on account of the enforcement of the alien-contract labor law \$78,766.65.

CHINESE EXCLUSION.

The total number of Chinese persons admitted to the United States in the last fiscal year was 7,195. Of this number, 5,273 were of the exempt class, principally merchants, students, etc.; 425 were so-called artists, actors, artisans, and laborers, admitted for the Transmississippi and International Exposition at Omaha, and 1,497 were returning registered laborers. There were also 865 who passed through the United States under bond in transit to other countries. Two hundred and eighty Chinese were refused admission.

The number of Chinese persons arrested for deportation because unlawfully in the United States was 756. Of this number, 220 were deported, by due process of law, at a total expense of \$24,132.94. The aggregate expense incurred in the enforcement of the Chinese-exclusion laws was \$84,453.74.

It is believed that many Chinese laborers have gained unlawful admission by representing themselves to have been born in the United States. In such cases they present themselves to the customs officers at the frontier and seek arrest. On being taken before the United States commissioner for deportation proceedings, they are frequently discharged on their own testimony and that of their alleged fathers. In many cases such testimony is believed to have been untrue, and in a number of instances the applicants or the alleged fathers, or both, have been successfully prosecuted for perjury.

In the case of *Quock Fing v. United States* (140 U. S., 417) it was held that the testimony of the applicant, corroborated by his alleged father, to the effect that he was of American birth, where the circumstances in evidence tended to lessen the probability that such testimony was true, was not sufficient to warrant the discharge of the applicant. Notwithstanding this ruling, United States commissioners in Vermont, New York, and elsewhere, having original jurisdiction in such cases, have discharged Chinese who enter the United States claiming to have been born therein, although circumstances in evidence tend to lessen the probability that the testimony is true.

In the act approved November 3, 1893, relating to the registration of Chinese residing in this country, it was provided that where a Chinese person applied for admission into the United States, on the ground that he was formerly engaged here as a merchant, he should establish, by the testimony of two credible witnesses other than Chinese, the fact that he conducted business as a merchant for at least one year before his departure from this country. The enactment of a law requiring Chinese claiming to have been born in the United States to establish that fact by evidence other than that of Chinese is, in my opinion, advisable in order to prevent evasion of the exclusion laws by persons claiming to have been born here of Chinese parents.

The joint resolution approved June 30, 1897, authorized and directed the admission to the United States of such number of mechanics, artisans, agents, or other employees, natives of China, as the Secretary of the Treasury might deem necessary for the purpose of preparing and conducting any privileges or concessions which might be granted by the Transmississippi and International Exposition Company of Omaha, Nebraska, in connection with such Exposition. The Department was duly advised of the granting of two concessions for Chinese exhibits at the Exposition, and the concessionaires, with the approval of the president of the Exposition Company, made application for the admission of 835 Chinese. Regarding the number excessive, the landing of 650 Chinese persons under the concessions referred to was authorized, and of this number 425 were admitted during the last fiscal year.

The Department is now advised that many of the Chinese admitted are no longer at the Omaha Exposition, and that a considerable number of women so admitted have since been the subject of barter for immoral purposes.

Although provision is made for the departure from this country of Chinese admitted as participants at expositions, the law is not observed, and great expense is incurred in apprehending and deporting such persons after the close of the exposition. In view of the abuses which have been practiced in these cases, it is submitted that the provisions of the Chinese-exclusion laws should not be suspended or waived in connection with expositions.

In view of the frequent arrival in the United States of vessels having Chinese laborers on board as stewards, cooks, and seamen, and in the absence of any authority to exact from the masters of such vessels bonds providing for the deportation of such Chinese laborers, it has been necessary to authorize the temporary employment of guards at several ports to prevent their illegal landing, at an expense of more than \$20,000 per annum, payable out of the appropriation for the enforcement of the Chinese-exclusion laws.

If bill H. R. 10829, now pending in Congress, which authorizes the execution of bonds by masters of vessels, conditioned for the deportation of Chinese laborers employed thereon, should become a law, this

expense would be avoided. The bill should, however, be amended so as to provide that where such bonds are not given, collectors of customs shall assign officers to duty as guards on the vessels at the expense of the masters thereof. With this amendment, the passage of the bill is recommended.

MARINE-HOSPITAL SERVICE.

With the close of the fiscal year 1898, the United States Marine-Hospital Service completed the one hundredth year of its existence, the original act for the relief of sick and disabled seamen having been passed by Congress on July 16, 1798.

The growth and development of this branch of the Government service during this time—and more especially during the last decade—are set forth in detail in its annual reports.

At this time the personnel of the Service is as follows: Commissioned medical officers, 75, including the Surgeon-General, 21 surgeons, 27 passed assistant surgeons, and 26 assistant surgeons.

There are, in addition, 136 noncommissioned officers, viz: Acting assistant surgeons, 98; sanitary inspectors, 4; and hospital stewards, 34. When all the stations of the Service have their full complement of attendants and quarantine employees, there are, in addition, about 400 men employed under this branch of the Government. This number is, of necessity, much increased during epidemics. There are 21 hospitals owned and operated by the Service, and 11 quarantine stations, but, in addition to these, there are 88 localities in the United States where patients of the Service receive dispensary and hospital treatment.

During the fiscal year 1898, the total number of beneficiaries treated at dispensaries and hospitals was 52,709, and of this number 11,914 were hospital patients.

Professional aid was also given to other branches of the Government service, viz: To the Revenue Cutter Service, in the physical examination of applicants for positions as cadets and engineers, and treatment of its members when ill; to the Life-Saving Service, in a similar manner; to the Steamboat-Inspection Service, in examination of applicants for pilots' licenses for color blindness; to the Immigration Service by medical inspection of immigrants; to the Civil Service, in making physical examinations; and, since the inception of hostilities with Spain, to the United States Army and Navy.

The aid rendered to the Army and Navy was not altogether limited to the care of sick or injured soldiers and sailors, although many were treated at the various hospitals of the Service. In accordance with the arrangements agreed upon between this Department and the War Department, officers of the Marine-Hospital Service were ordered to duty on board vessels used by the Army as transports, in order that these ships might be kept in good sanitary condition and free from infection, although voyaging between this country and infected ports.

The detention camp at Egmont Key, Florida, received laborers and soldiers coming from Cuba and held them until proved to be free from infection. One commissioned officer was granted leave of absence to permit his enlistment in the Army and one served as surgeon of the revenue cutter *McOulloch* during the naval operations at the Philippines. A number of acting assistant surgeons were also granted temporary leave for service with the Army.

The expenditures from the Marine-Hospital fund during the fiscal year 1898 were \$600,131.45. The balance on hand at the close of the fiscal year was \$514,997.83.

At the beginning of the fiscal year there was on hand a balance of \$474,720.86 from the appropriation for the prevention of the spread of epidemic diseases, but the operations of the Service during the summer of 1897 for the suppression and limitation of the spread of yellow fever reduced this amount materially, so that of this appropriation only \$256,424.44 remained available at the close of the fiscal year. This amount, however, was increased by the deficiency appropriation of \$200,000 (act of July 7, 1898) for quarantine measures, making the available balance \$456,424.44.

Marine hospitals.

The Surgeon-General reports that the marine hospitals are in good condition, and that during the past year special attention has been paid to their equipment in the matter of furniture and appliances for patients, medical libraries, and operating rooms, the latter being supplied with the most recent appurtenances connected with modern surgery.

An exhibit, illustrating the functions of the Service, was made in the Government building at the Omaha Exposition.

Contagious diseases.

The report of the Surgeon-General contains, under separate chapters, full reports upon the prevalence of cholera, yellow fever, smallpox, plague, and leprosy, together with scientific information concerning the nature of these diseases and the sanitary measures adopted for their suppression.

Smallpox has appeared during the year in 24 States and the District of Columbia. The Marine-Hospital Service, by special request, took complete charge of the epidemic at Birmingham, Ala., and at Middlesboro, Ky., causing the disease to disappear in those localities, and giving advisory aid, through competent officers, to a number of other infected points. The disease has been of a remarkably mild character, and, inasmuch as it is one that is easily prevented by vaccination, the Surgeon-General expresses the belief that its suppression should be left to State and local authorities, except under grave conditions and where

its spread to several States is especially threatening. The action of the Department in rendering aid in this instance has been in accordance with this position.

With regard to leprosy, as recommended in my last annual report to Congress, a bill was introduced authorizing an investigation by the Marine-Hospital Service as to its prevalence and necessary sanitary measures to prevent its spread. This bill (S. 2904) has passed the Senate, has been reported favorably by the House committee, and it is hoped that it will become a law during the coming session of Congress.

Foreign sanitary inspection.

To assist in the prevention of the introduction of contagious diseases into the United States, sanitary inspectors have been stationed at Habana, Santiago de Cuba, Rio de Janeiro, and Yokohama, the detailed information furnished by them being published in the annual report of the Service.

The Surgeon-General reports that, owing to the new conditions in Cuba and Puerto Rico, and on account of the growing proportions of the fruit trade with certain Central and South American ports, it will be necessary during the coming season to have special inspectors stationed at a number of ports with a view of certifying to the freedom from infection of each vessel clearing therefrom. This is necessary both for safety and to prevent undue detention of these vessels at quarantine, which would ruin this trade. The expenses of these inspectors will be paid out of the epidemic fund.

National quarantine stations.

The eleven national quarantine stations have been operated successfully during the year, and many repairs and additions to their equipment have been made under special appropriations from Congress.

It is recommended that ample appropriations be made for national quarantine stations in order that their equipment may be made complete for the rapid transaction of business and the safety and comfort of vessels and persons undergoing detention.

The board appointed to select a site for the new quarantine station at the mouth of the Columbia River, in Oregon, appropriated for at the last session of Congress, has made its report, and negotiations are in progress for securing a desirable site.

Sanitary reports and statistics.

In this division of the Bureau a table of mortality for more than 1,000 cities and villages of the United States has been published, giving the total number of deaths, the number of deaths from infectious diseases, and the estimated death rate.

The Public Health Reports of the Marine-Hospital Service, containing statistical information concerning the health of various localities

throughout the world, quarantine reports, immigration reports, and such information of a sanitary nature as is of interest to those engaged in the preservation of public health, are prepared in this division and published every week. This publication is now in the thirteenth year of its existence, and constitutes a volume of over 1,000 pages yearly. It is distributed to sanitarians, State and local boards of health, health officials in this and foreign countries, quarantine officers, and consuls, and forms a valuable repository of current sanitary reports.

Hygienic laboratory.

The Surgeon-General reports that during the past fiscal year original investigation has been continued in the hygienic laboratory of the Service; an examination—bacteriological and chemical—of the water of the Potomac River, as it flows from the pipes in the District of Columbia, has been made, and the result submitted to Congress in response to special request.

Work in connection with car sanitation has been continued, and experiments in immunization for pneumonia and enteric fever have been carried on, together with investigations into the purity and various methods of preparation of vaccine.

In addition to these investigations, experiments were carried on to test the efficiency of formaldehyd as a disinfecting agent, and a comparative study of the pseudo-diphtheria and true diphtheria bacillus, previously undertaken, was completed. Work is in progress whereby the laboratory will be able to furnish the material for the treatment of hydrophobia according to the method of Pasteur.

Instruction of officers of the Service in bacteriological work has been continued.

Attention is again called to the necessity—increasing every year—for the enlargement of the laboratory of the Service and for providing therefor a separate building, and it is recommended that an appropriation of \$50,000 be made for this purpose.

It is also recommended that a commission of medical officers of the Marine-Hospital Service be authorized by act of Congress to investigate the source of pollution of streams and other water supplies of towns and cities where it affects the people of more than one State.

Scientific investigation of yellow fever.

As stated in my previous annual report, by direction of the President two skilled bacteriologists of the Marine-Hospital Service were specially detailed to investigate in Habana the cause of yellow fever. A laboratory was established, and they continued their labors until obliged to withdraw on account of the war. They have now returned, and are continuing the investigation, and their preliminary report, published in the annual report of the Service, indicates that the true cause of the

disease has been found by Professor Sanarelli in the bacillus icteroides. Further work is necessary for definite demonstration, but if the present indications are borne out by future laboratory experiments, a great advance will have been made toward both the prevention and cure of yellow fever.

Origin of yellow fever epidemic of 1897.

The question of how the yellow fever gained admission to the United States last year (1897) is discussed and brought to a conclusion in the report of the Surgeon-General for 1898.

The attempt to fasten the responsibility upon the national quarantine station at Ship Island, Mississippi, is shown by the report of the Senate committee appointed to investigate the subject, and the report of the committee of the legislature of the State of Mississippi, to have failed. The management of the station and the wisdom and legality of its return to Ship Island, after the destruction of Chandeleur Island, had been viciously assailed, but, after the most searching investigation, exoneration followed.

As shown in the report of a medical officer of the Service specially detailed to make the investigation, the fever was introduced in Ocean Springs in April, 1897, through a traveler from Guatemala, who came to Ocean Springs through the New Orleans quarantine on April 12, before the beginning of the close quarantine season, and arrived at Ocean Springs April 13, sick.

Post-epidemic disinfection.

After the fever of 1897 the Marine-Hospital Service, with the aid of the local authorities, entered upon a complete disinfection of all places in Mississippi, Alabama, and Louisiana where yellow fever had been reported. This work occupied the entire winter, with great expense and labor, and is considered to have been valuable in at least limiting the disease during the summer just ended, the recrudescence this year being confined, so far as known, to McHenry, Miss., and Franklin and New Orleans, La., none of the numerous infected localities in Alabama suffering from a return of the disease.

Yellow fever precautions, 1898.

The unsettled conditions in Cuba, and, later, the outbreak of hostilities with Spain, excited grave concern lest in the turmoil of war the yellow fever should gain admission to the United States. The greatest care and vigilance were, therefore, exercised by the Marine-Hospital Service to prevent it, and the efforts made were successful, the appearance of yellow fever in Mississippi and Louisiana in

the late summer and fall being considered a recrudescence of the fever of the previous year.

Competent officers of the Marine-Hospital Service were located in different portions of the south Atlantic and Gulf seaboard for the purpose of maintaining vigilant watch with regard to the observance on the part of naval vessels and army transports of the quarantine regulations.

Letters were addressed to the Secretary of War and to the Secretary of the Navy, inviting their attention to the grave dangers involved through military operations, with request that their officers be directed to observe strictly the national quarantine regulations. Prompt and satisfactory replies were received, and orders were issued in accordance therewith.

The Surgeon-General of the Marine-Hospital Service, through frequent communication with the Navy and War Departments, kept himself informed regarding the anticipated return of troops and vessels, and secured the cooperation of both Departments in the selection, as ports of arrival from Cuba, of points where the danger of yellow fever infection is materially diminished and where they could comply more readily with the quarantine regulations.

Meantime, on Egmont Key, at the entrance of Tampa Bay, a detention camp was established for holding under observation those who might be brought from Cuba through urgent necessity or ignorance of the quarantine regulations or by mistake. About 700 refugees were cared for in this camp.

Learning of the contemplated transfer of the Army from Santiago to Montauk Point, this Department addressed a letter to the Secretary of War, outlining the measures which should be taken to prevent the movement becoming dangerous. The substance of these letters was embraced in the official order of the War Department relating to the precautions to be taken both at Santiago and on arrival at Montauk. At the latter place a complete maritime quarantine was established by the Marine-Hospital Service, embracing a corps of inspecting officers, with expert diagnosticians, and a floating disinfecting plant, the barge *Protector*, which had just been completed for service at Tortugas quarantine. The quarantine anchorages were buoyed by the Light-House Establishment, and the auxiliary navy and the Revenue Cutter Service furnished patrol vessels to prevent communication with the incoming transports.

The troops on landing were taken to provisional camps under control of the Army, where they were held under observation before entering the regular camp. Three cases of yellow fever were found upon two of transports and the latter and their contents were thoroughly disinfected.

In addition to the above, there was prepared by the Marine-Hospital Bureau a treatise on yellow fever, giving in plain terms the quarantine

regulations against this disease and the method of dealing with it when found on board ship or on land. This book was issued to naval vessels, army transports, quarantine officers, and others. Its value has been widely acknowledged.

Recrudescence of yellow fever in Louisiana and Mississippi in 1898.

Anticipating a possible recrudescence of the fever in the South, a number of physicians were employed in various localities to report promptly suspicious cases to the medical officers of the Marine-Hospital Service.

Through one of these officers the presence of the disease at McHenry, Miss., was made known to the Bureau July 9. It was found to have existed in mild form for three weeks previous to that date. The cause of the recrudescence at McHenry is fully set forth in the report of the Surgeon-General. There were in all 22 cases, but no deaths and no spread. Most active measures were immediately taken, and for the first time, so far as known, in the history of this disease, an epidemic was suppressed in its incipency.

August 11 there was a reported death from yellow fever at Franklin, La., and, despite strenuous efforts, it prevailed in Franklin until the latter part of October, with a total of 607 cases and 9 deaths. Earnest efforts were made, and with success, to prevent its spreading from Franklin to other localities. These measures consisted of a cordon and detention camp and a careful watch of surrounding localities.

August 31 yellow fever was reported at Orwood, Miss., and investigation showed that it had existed in mild form for some weeks, and there had been a total of 35 cases to the 4th of September. The infection was traced to Taylors, Miss., where cases had developed as early as July 20. Subsequently the fever was found in various other localities in Louisiana and Mississippi, the date of its announcement, however, not indicating the date of the infection of the locality. The (apparent) spread from one locality to another was apparent only, the probability being that a number of places were infected at about the same time from one or more centers of infection.

September 17 the disease was first officially announced in New Orleans, though doubtless it had been existing there an indefinite time prior to that date. As officially reported, there were in all 74 cases and 19 deaths, but there is little doubt these figures do not correctly express the true prevalence and mortality of the disease.

The outbreak was practically brought to an end in the latter part of October with the presence of frost. November 10, there had been reported officially in both Louisiana and Mississippi 2,455 cases, with 114 deaths, a mortality of 4.64 per cent. Of this number, 1,470 cases and 51 deaths occurred in Louisiana and 985 cases and 63 deaths in Mississippi.

That the disease was mild is shown by a comparison with the statistics

for Louisiana and Mississippi of the epidemic of 1897, itself a very mild one, when there were in Louisiana 1,916 cases with 293 deaths, and in Mississippi 1,668 cases and 96 deaths, the total for these two States being 3,584 cases and 392 deaths, a mortality of 10.9 per cent.

The disease this year was confined to Louisiana and Mississippi, while in 1897 it was reported in Alabama, Tennessee, and Texas, as well as Louisiana and Mississippi. While there was panic caused by the presence of yellow fever, interruption of train service on railroads was inconsiderable when compared with the season of 1897.

Experienced surgeons of the Marine-Hospital Service were sent to all infected and suspected points, and the work of the Service consisted in the establishment of detention camps, train-inspection, disinfection of baggage from the infected localities, surveillance over travel, disinfection of freight, and other measures intended to prevent the spread of the disease and at the same time prevent panic and other unnecessary interruptions to traffic. The Department has received many expressions of appreciation of services rendered.

During the summer and fall, reports of the existence of yellow fever in certain seaboard cities of the South were received, making necessary careful investigation. While these investigations were negative in their results, they caused for the time as much solicitude and labor as though the results had been affirmative.

National quarantine.

With regard to protection from yellow fever in the future, the Surgeon-General calls attention to the necessity for perfecting the national maritime quarantine, as has been consistently advocated by him in previous reports. Arrangements have been perfected providing for the disinfection of vessels before their departure from Habana and Santiago.

The deficiencies in the present national quarantine laws were duly presented to Congress at its last session, and bills were introduced (H. R. 4363 and S. 2680) amending the present law and providing for more strictly national quarantine, both maritime and interstate. These bills, making practically the same provisions, received the indorsement of this Department and were favorably reported upon by the respective committees of the Senate and House, are now pending, and should be enacted into law.

REVENUE CUTTER SERVICE.

Following is a summary of the work performed by the vessels of the Revenue Cutter Service during the year, being exclusive of services rendered in cooperation with the Army and Navy during the war:

Miles cruised.....	280, 110
Miles cruised for the Life-Saving Service.....	1, 120
Lives saved, actually taken from the water.....	27

Persons rescued and succored with provisions, fuel, etc., in the Arctic regions.....	265
Patients treated by the medical officer of the <i>Bear</i> , in Alaska, from Unalaska to Point Barrow and return.....	1, 557
Vessels boarded and papers examined.....	23, 172
Vessels seized and reported for violations of law.....	548
Fines and penalties incurred by vessels reported.....	\$242, 695
Vessels in distress assisted.....	92
Value of vessels assisted and their cargoes.....	\$1, 640, 280
Persons on board vessels assisted.....	679

Vessels.

In my last annual report the following was submitted :

The following vessels should be condemned and sold just as soon as it is possible to replace them :

The Seward: This vessel was constructed in 1873 ; is a wooden side-wheeler ; now, after twenty-four years' service, is practically worn out, unseaworthy, and not worth extensive repairs ; cost originally \$34,600, and since for repairs \$26,588.

The McLane: This vessel was acquired from the Navy in 1865, after serving as a gunboat during the war. It is an iron side-wheel vessel, of obsolete type, has been thirty-two years in the Revenue Cutter Service ; cost originally \$36,000, and for repairs since \$113,275. The vessel is not worth extensive repairs.

The Colfax: This vessel was constructed in 1871, is of iron sheathed with wood, twenty-six years old and a side wheeler ; cost originally \$65,500, and since for repairs \$87,000. The hull is very tender and can not be properly repaired without practically rebuilding, and it is not worth any considerable outlay.

The Boutwell: This vessel was built in 1873, and owing to bad design is not now, and never was, a seaworthy vessel. It is a twin-screw boat, very slow, and unfit for the work of a revenue cutter ; cost originally \$70,000, and since for repairs \$49,840.

The Washington and *Chandler* are both small tugs, acquired from the Navy in 1865, in which they did service during the war. Both are wooden vessels, have been in the Revenue Cutter Service thirty-two years. They cost originally, the *Washington* \$7,000 and the *Chandler* \$6,500, and for repairs since \$35,732 and \$34,537, respectively.

The Hamlin: This vessel was constructed in 1866, is a small wooden tug, and has been actively in service for thirty-one years. It is past repairing ; cost originally \$15,500, and for repairs since \$13,046.

There should be provided a vessel for service on the Columbia River, Washington, and nearby waters. The Columbia River Bar is widely known to be dangerous, and a vessel should be constructed with special reference to service in those waters.

I recommend that five cruising vessels and at least three vessels for harbor service be provided. These vessels should take the place of those worn out in service and no longer worth extensive repairs.

As conditions have not changed since the foregoing was written, except that expenditures for repairs upon the old vessels named, aggregating \$3,972.04, have been added, the recommendations are renewed.

The Service in the war with Spain.

The Revenue Cutter Service has taken an active and conspicuous part in the war with Spain. There were with the Navy 13 revenue

cutters, carrying 61 guns, 98 officers, and 562 enlisted men. Of these, 8 cutters (43 guns), 58 officers, and 339 men were in Admiral Sampson's fleet and on the Habana blockade; 1 cutter (6 guns), 10 officers, and 95 men were in Admiral Dewey's fleet at Manila, and 4 cutters (12 guns), 30 officers, and 128 men cooperated with the Navy on the Pacific Coast.

At the battle of Manila, the *McOullock*, Capt. D. B. Hodgson, R. C. S., efficiently performed the duties assigned by Admiral Dewey. It was the *McOullock* that carried to Hongkong the dispatches announcing to the Government and to the world that glorious and signal victory. Admiral Dewey has officially commended the commander of the *McOullock* for the value and efficiency of his command.

At the battle of Cardenas, May 12, the revenue cutter *Hudson*, Lieut. Frank H. Newcomb, R. C. S., commanding, sustained the fight against the gunboats and shore batteries of the enemy, side by side with the naval torpedo boat *Winslow*, and when Ensign Bagley and half the crew of the latter-named vessel had been killed and her commander wounded, rescued from certain destruction the vessel and the balance of the crew, under the furious fire of the enemy's guns. On the same day (May 12) the *Windom*, Captain Maguire, R. C. S., engaged the enemy's shore batteries at Cienfuegos, demolished the light-house, and destroyed the rendezvous of the Spanish troops there. During this engagement the senior naval officer present, in appreciation of the fine work of the *Windom*, signaled from his flagship: "Well done, *Windom*."

The *Manning*, Capt. F. M. Munger, R. C. S., commanding, was in many engagements with shore batteries of the enemy, and Captain Todd, U. S. N., has officially bestowed upon her commander generous praise for the efficiency of his command and for effective and meritorious services. Rear-Admiral Howell and Commodore Remey have officially commended the efficiency of the Service in cooperation.

In addition to services rendered by vessels with the naval forces, there were 7 others, carrying 10 guns, 33 officers, and 163 men, with the Army, engaged in patrolling and guarding mine fields in various harbors, from Boston to Mobile and New Orleans.

The Revenue Cutter Service had, in active cooperation with the Army and Navy throughout the war, 20 vessels, carrying 71 guns, 131 officers, and 725 men. There were 3 other vessels—25 officers and 210 men—ordered to be transferred to the Navy, but, because of unavoidable delays by contractors in finishing their work, the vessels could not be sent to the front.

Personnel.

Attention is again invited to the necessity of adequate legislation for the further promotion of the efficiency of the Revenue Cutter Service. The usefulness of this branch (in common with that of other similar organizations) depends for the most part, if not wholly, upon the fitness

of those composing its commissioned ranks. It is the aim and purpose of the Department to raise the Revenue Cutter Service to the highest standard of excellence. While much has been done in this regard by the Department, in the formulation of proper orders and regulations, certain essential results can not be accomplished without legislation by Congress, the need of which is seriously felt. Something must be done immediately, whereby the active lists of commissioned officers can be filled with men mentally and physically qualified to perform the arduous, hazardous, and exacting labors which the laws impose. Prior to the year 1895, the Service, due to the absence of remedial legislation, had reached such a state that Congress finally recognized its almost helpless condition, and passed the act of March 2, 1895, under the provisions of which 39 officers were placed upon a permanent waiting-orders (or retired) list. In the enactment referred to, Congress recognized two essential features: First, the absolute necessity of extending this relief in the form of a retired list; and, secondly, the justice and fairness of the principle of the relief extended.

But the act did not go far enough. While it relieved an emergency and retired from active service all officers who were then (March 2, 1895) disqualified, it ended there. Some officers who were left on the active list, after the law had been carried into effect, as physically sound, have since become unfit for duty afloat, because of age and disabilities incident thereto, as well as to those contracted in the line of duty. As a consequence, there are at this time 11 officers who are, by reason of age alone, incapacitated for active duty afloat. These are as follows: One of 72 years, one of 67 years, three of 66 years, one of 65 years, three of 63 years, and two of 62 years. The length of service of these officers ranges from twenty-eight to thirty-seven years in individual cases, while some of them are veterans of the Navy in the war for the Union. It will thus be seen that the Service is seriously crippled at this time, and relief is recommended.

It will be readily conceded by all who are conversant with the facts that no branch of the public service in time of peace requires as continuous, laborious, and hazardous service as this, while in time of war, as was practically demonstrated in the war with Spain, it stands upon the same ground with the Navy in everything, except in the matter of compensation and the benefits bestowed by the Government upon the commissioned ranks of the sister service, in connection with which, under the law, the Revenue Cutter Service bore so conspicuous and meritorious a part.

There is pending in Congress a satisfactory bill (S. 620), which has been favorably reported by the Committee on Commerce of the Senate. This bill makes just and fair provision for a "permanent waiting-orders" (or retired) list for the Service, and its passage is recommended.

There is also pending in Congress Senate bill 3903, for the promotion of the efficiency of the Revenue Cutter Service, which has my cordial

indorsement and approval. This bill was passed by the Senate April 29, 1898, and has been favorably reported by the Committee on Interstate and Foreign Commerce of the House of Representatives and now awaits the action of that body. Its most important features provide for the enforcement of discipline, giving the force of law to that which can not be compassed by regulations. The bill as a whole is essential to the welfare and advancement of the Service, is a meritorious measure, and it is hoped will become a law as soon as practicable.

Pensions.

In the matter of pensions for the enlisted men of the Revenue Cutter Service, the recommendation on the subject contained in my last annual report is repeated, as follows :

Under the provisions of section 4714, Revised Statutes, the officers and seamen of the Revenue Cutter Service who may be wounded or disabled in the discharge of their duty, "while cooperating with the Navy by order of the President," may be placed upon the Navy pension list.

The ordinary duties devolved upon the Revenue Cutter Service are fraught with greater risk of life and limb than that incurred by the Army, Navy, and Marine Corps in time of peace, while in time of war they are at least equal, and every argument that applies as a justification for extending this bounty to those services has equal force on behalf of the enlisted men of the Revenue Cutter Service. I therefore recommend that the law, section 4714, Revised Statutes (act of April 18, 1814), be amended to read as follows :

"The enlisted men of the Revenue Cutter Service of the United States, who have been or may be wounded or disabled while in the actual discharge of their duties, shall be entitled to be placed upon a pension list under the same regulations and restrictions as are now provided by law for enlisted men of the Navy."

Arctic relief expedition.

November 6, 1897, shortly before the arrival of the revenue cutter *Bear* from her usual annual cruise in the Arctic Ocean, news came that several whaling vessels were ice-bound at or near Point Barrow, in arctic Alaska. Their officers and crews numbered 265 men. Unless succor could be given them early in the spring of 1898 they would be in danger of starvation. Steps were at once taken to render aid. The *Bear*, upon her arrival in port, was made ready for the undertaking. An abundant supply of provisions for the whalers was put on board, and preparations were also made for the expedition which traveled overland.

The personnel of the overland expedition included Lieut. D. H. Jarvis, R. C. S., commanding ; Lieut. E. P. Bertholf, R. C. S., and Surg. S. J. Call, R. C. S. The *Bear* was commanded by Capt. Francis Tuttle.

Nineteen days from the inception of the movement the expedition sailed from Seattle. Unalaska was reached without special incident.

December 11 the *Bear* sailed thence north through Bering Sea in quest of a landing place for the overland party. When within 90 miles of the north shore of Norton Sound the ship was driven back by ice and gales to the southward of Nunivak Island. Finally Lieutenant Jarvis and his party were landed on Cape Vancouver. Then began a perilous journey of 1,500 miles. These brave men struggled onward four months in the midst of an arctic winter and an arctic night, over a route never even traveled before by dog sleds.

The expedition was highly successful, and resulted in the relief of 265 men, 128 of whom were brought back to Seattle. The achievement will take high rank because of its success, and for the exhibition of fortitude and courage by the members of the overland expedition and the officers and crew of the *Bear*.

While the expedition was on its way the *Bear* wintered at Dutch Harbor, Unalaska, being detained there by ice and weather conditions until June 14, 1898, when a start was made for the Arctic. July 16, after encountering fogs, gales of wind, and ice packs, Point Hope, in the Arctic Sea, was reached, and Lieutenant Bertholf joined the ship. The *Bear* then proceeded, beset by heavy ice, to Point Barrow, which was reached July 29. Here Lieutenant Jarvis and Dr. Call, of the overland party, were taken on board. After provisioning the ships found at Point Barrow and vicinity, succoring the people who were to remain, and receiving on board all who desired passage, the *Bear* sailed for Seattle, where she arrived September 13, after an absence in the desolate regions of arctic Alaska of nearly seventeen months.

The highest commendation is due to Capt. Francis Tuttle for ability displayed in bringing his part of the relief expedition to a successful termination, and to the officers and crew of the *Bear* for their devotion to duty. High praise and generous reward are due to Mr. W. T. Lopp, of the American Missionary Society at Cape Prince of Wales, and to the intelligent native Artisarlook, who left their homes and families to aid the overland expedition, providing reindeer and helping to drive them to Point Barrow.

NAVIGATION.

War with Spain and the annexation of the Hawaiian archipelago, which have changed the political and commercial relations of the United States not only with Cuba, Puerto Rico, Hawaii, and the Philippines, but also with the continents between which and North America those islands are stepping stones, require the prompt adoption of an affirmative maritime policy by the United States.

For reasons sufficient in the sight of civilization, we have expelled a maritime power of no mean rank from its colonies. We must be prepared to assume, in part at least, the obligations to those islands which were but imperfectly discharged by that nation, and to secure to them and to ourselves the reasonable benefits of a relationship which Spain

pushed to the degree of extortion. It is not to be expected that the Government of Spain will long continue its support of the mail steamship lines which have connected its lost possessions with the rest of the world. Whether, then, the military occupation of former Spanish possessions by the United States shall lead to their independence or to their control by this country ultimately, at present it is clear that American vessels must be established in part in the carrying trade of the islands or we must allow Great Britain, France, and Germany to fill entirely the place as a carrier which Spain is about to vacate.

Regular and frequent communication between the United States and the islands of the Atlantic and Pacific, which have come within the sphere of political influence or the absolute control of the United States, will not, however, satisfy all the obligations which new conditions have created. Our boundaries have been pushed thousands of miles nearer to the markets of Asia and Australia, and hundreds of miles nearer to the markets of South America and Africa than they were a year ago. Advantages for the increase of our carrying trade thus afforded will become ours if we stretch forth our hands to accept them. The relatively undeveloped navigation between the United States, the islands of the Pacific, and Asia, and the partially developed navigation to South America and Africa, will certainly be lost to us if indifference to present political and commercial rivalry is now left undisturbed, as was indifference to the mechanical revolution wrought in navigation by iron and steam at the end of the first half of the century.

It has not escaped the notice even of the less acute among our observing citizens that while we have laws to protect and encourage industries in which, from natural conditions, we must equal or excel our competitors, the building and navigating of vessels for the international exchange of products have received but scant and desultory notice from the law-making power of late years. Yet during these years the conditions under which shipbuilding and oversea navigation are conducted by maritime nations have so changed that the statutes on our books have almost lost vitality.

A positive policy which shall create anew an American seagoing merchant fleet is not intrinsically more difficult to establish than has been the recent rehabilitation of the American Navy, or than, a third of a century ago, was the establishment of transcontinental railroad communication. It will undoubtedly require at the beginning, and for some time to come, the appropriation of appreciable sums of money, though very much less than our annual expenditures in times of peace for naval construction and maintenance; but from the nature of the situation, these expenditures, if adequate at the outset, can be decreased, and, as is usual with properly adjusted expenditures for the improvement of means of transit and communication, will bring in an early and steady return on the investment.

The political exigencies which confront us have been mentioned.

Commercial exigencies, on the Pacific at least, are equally urgent, for events in the East have precipitated a rivalry for the control of the carrying trade of that ocean, the great possibilities of which we have been prone to reckon among our national assets without the effort to secure them.

In the preparation of legislation to meet the requirements of the situation we may study with advantage the methods which are now employed by our competitors, for those methods have been evolved from experiment and experience in a branch of industrial activity to which, of late years, they have given much thought and we little.

Great Britain, Germany, and France have consistently pursued for years the policy of contributing liberally from the public funds to establish steamship lines as a political measure, regarding such lines as national necessities rather than as commercial investments. This country is now so placed that the same motive must at least be fully considered in deciding upon our course of action. Even if the motive were absent, the fact of Government aid to the foreign lines of steamships with which American vessels must compete can not be ignored. The extent of that assistance is too often exaggerated in this country, but the margins on which the business of ocean transportation is conducted are usually so close that even moderate support for public services may suffice to render successful maritime ventures which could not be undertaken and regularly prosecuted without such support.

France, Italy, and Japan have adopted the policy of aiding from the public funds the construction and navigation of substantially all their vessels engaged in oversea navigation, on the theory that the maintenance of the merchant service is essential as a measure of national defense. By the expenditure of about \$1,000,000 annually on the training of merchant seamen as naval reserves, and by refunding light dues to British vessels furnishing naval reserves, Great Britain recognizes the same principle. The events of the summer have brought home to us the reliance which a peaceful country in time of war must place on its merchant marine and merchant seamen.

The maritime nations of the world for some years have permitted their shipowners, either unconditionally or under certain restrictions, to purchase vessels built in other countries. The policy of the United States, from the beginning of the Government, has been opposed to American ownership of vessels built abroad. The law, however, was relaxed in order to permit the establishment of the only American transatlantic mail line in operation, and during the year Congress, in its wisdom, and the Departments specially charged with the conduct of the war, made numerous exceptions to the general rule.

Maritime nations, notably Great Britain and Germany, require the shipping entering their ports to contribute reasonable taxes for the lighting of the coast, the improvement of harbors, and like objects of expenditure. Although three-fourths of the shipping in international trade

which enters our ports are foreign, and though our annual appropriations for lighting our coasts and improving our harbors amount to many millions of dollars, the United States, with unique generosity, has for many years given entry to our ports at relatively insignificant charges, or no charges whatever, to the vessels of foreign shipowners who are accustomed to pay considerable taxes for the corresponding privilege at home.

By selection and combination from the methods referred to, it will not be difficult to evolve a legislative project for the development of our merchant marine and of domestic shipbuilding, adjusted to our special needs and based on the prevalent conditions of competition in the ocean-carrying trade.

The method recommended may be specifically set forth in the following propositions:

First. A remodeling and extension of the act of March 3, 1891, relating to the carrying of ocean mails in American steamships, so that it shall meet requirements which have arisen since the law went into operation.

Second. The establishment of a system of graded bounties upon the mileage navigated by registered American vessels while engaged in the foreign carrying trade as compensation for the training of seamen available for the national defense, the system to have regard also to the construction of vessels which may be promptly and economically converted into cruisers, troopships, colliers, and supply ships for the use of the Government. Special provision should also be made for vessels and men engaged in the deep-sea fisheries.

Third. Extended application of the principle of the act of May 10, 1892, by virtue of which the *St. Louis* and *St. Paul* were constructed in this country upon the registry of the foreign-built steamships *New York* and *Paris*, this extension to continue for a short term of years and to be so guarded as to preserve the coasting trade to American-built vessels.

Fourth. A moderate increase in the rates of our tonnage taxes, equalizing them with the corresponding charges at present imposed at London, Liverpool, and Hamburg.

Fifth. The restriction of the trade between the United States, Puerto Rico, and Hawaii and the coasting trade of those islands to vessels of American registry.

These propositions are drawn from the current practices of our maritime competitors. They can be put into operation promptly upon their enactment. They will not raise diplomatic difficulties, delaying action and involving us in prolonged discussion or a war of commercial retaliation. They will not raise political questions upon which parties, as now constituted, may divide. They are believed to be entirely adequate to our needs. The details of these propositions are discussed in the report of the Commissioner of Navigation, in which are also to be found statistics upon the subject.

The report of that officer shows: On June 30, 1898, the merchant marine of the United States, including all kinds of documented shipping, comprised 22,705 vessels, of 4,749,738 gross tons. On June 30, 1897, it comprised 22,633 vessels, of 4,769,020 gross tons. The following table shows the geographical distribution, motive power and material of construction, and trade of vessels of the United States for the fiscal year 1898, compared with the fiscal year 1897, and also the construction for the two years:

Vessels of the United States.

	1897.		1898.	
GEOGRAPHICAL DISTRIBUTION.				
Atlantic and Gulf coasts.....	Number. 16,562	Gross tons. 2,647,796	Number. 16,442	Gross tons. 2,558,739
Pacific coast.....	1,581	439,012	1,754	496,767
Northern lakes.....	3,230	1,410,108	3,256	1,437,500
Western rivers.....	1,280	272,109	1,253	261,732
Total.....	22,633	4,769,020	22,705	4,749,738
POWER AND MATERIAL.				
Sail:*				
Wood.....	15,940	2,276,988	15,896	2,237,153
Iron and steel.....	94	133,524	97	140,662
Total.....	16,034	2,410,462	15,993	2,377,815
Steam:				
Wood.....	5,670	1,284,859	5,775	1,288,785
Iron and steel.....	929	1,073,699	937	1,068,138
Total.....	6,599	2,358,558	6,712	2,356,923
Canal boats.....	650	73,786	660	74,640
Barges.....	1,480	432,523	1,667	467,848
Total.....	2,130	506,309	2,327	541,988
TRADE.				
Registered:				
Steam, iron, and steel.....	103	222,136	119	245,059
Steam, wood.....	144	36,337	193	49,005
Sail †, wood and iron, and steel.....	983	547,111	824	443,645
Total.....	1,230	805,584	1,136	737,709
Enrolled and licensed:				
Steam, iron, and steel.....	826	851,562	915	978,741
Steam, wood.....	5,526	1,248,521	5,485	1,099,118
Sail *, wood and iron, and steel.....	15,051	1,863,353	15,169	1,934,170
Total.....	21,403	3,963,436	21,569	4,012,029
CONSTRUCTION DURING THE YEAR.				
Geographical distribution.				
Atlantic and Gulf coasts.....	609	96,009	514	63,090
Pacific coast.....	64	7,495	228	49,789
Northern lakes.....	120	116,937	87	54,064
Western rivers.....	98	11,792	123	13,495
Total.....	891	232,233	952	180,458
Power and material.				
Sail:				
Wood.....	327	29,678	367	27,692
Steel.....	11	34,631	2	6,724
Steam:				
Wood.....	244	27,917	343	57,337
Iron and steel.....	44	78,236	51	48,501
Canal boats.....	70	10,216	20	2,396
Barges:				
Wood.....	182	40,027	169	30,777
Steel.....	13	11,528	10	7,041
Total.....	891	232,233	952	180,458

*Including canal boats and barges.

†Including barges.

The slight apparent decline of about 20,000 tons in our total tonnage is explained by the fact that upward of 60,000 tons were transferred during the closing months of the year from the merchant list to the War and Navy by purchase. In the main, these are still essentially merchant vessels, though temporarily in the service of the Government. During the fiscal year we thus passed through two months of a maritime war without any real decrease in our merchant shipping. This is the more significant, as British shipping during the six months of 1897 covered in our fiscal year showed a decline. The construction of vessels during the year was much less than during the preceding year; but such was the fact also in Great Britain and maritime countries generally. Our shipbuilding during the closing months of the fiscal year showed a marked gain over the corresponding period of the previous year, and the present fiscal year promises to be of exceptional activity in our shipyards.

The receipts from tonnage taxes for the year were \$846,771, compared with \$731,770 for the previous year and \$544,225 for the year ended June 30, 1896. The Commissioner of Navigation offers suggestions on the operation of the laws concerning tonnage taxes which are commended to the attention of Congress. Legislation for the benefit of American seamen now holds a place in Congress favorable to early action.

STEAMBOAT-INSPECTION SERVICE.

The Supervising Inspector-General reports, for the fiscal year, that the personnel of the Service at its close consisted of 177 officers, clerks, and messengers.

The expenses were: For salaries, \$288,979.64; contingent expenses, \$46,340.19; decrease in expenditures from 1897, \$6,222.98.

Total number of annual certificates of inspection issued to steam vessels, foreign and domestic, 8,448; number of certificates issued to foreign passenger steam vessels, 316; to domestic steam and other motor vessels, 8,132; gross tonnage of foreign steam vessels, 1,115,446; net tonnage of domestic vessels inspected, 1,958,437; total number of officers holding license, estimated to be 41,000.

Classification of inspections, tonnage, and officers licensed, according to the several divisions of navigation, for the fiscal year ended June 30, 1898.

Divisions.	Inspections of steamers.	Tonnage.	Officers licensed.
Pacific coast	766	222,522	2,380
Atlantic coast	3,744	1,741,548	9,807
Western rivers	1,055	133,445	3,405
Northern lakes	2,259	824,636	4,497
Gulf coast	624	151,732	1,743
Total	8,448	3,073,883	21,802

Increase in number of annual certificates of inspection issued to domestic vessels over previous fiscal year	110
Increase in number of annual certificates of inspection issued to foreign steamers over previous fiscal year	11

It is estimated that 650,000,000 passengers were carried on steam vessels during the year.

Total number of accidents resulting in loss of life during the year.....	31
Total number of lives lost by accidents from various causes during the year.....	283
Increase in number of lives lost over previous year.....	100

Of the number of lives lost as above reported, 84 were passengers and 199 belonged to the crews of the vessels.

Inspections of foreign steam vessels: British, 183; German, 61; Dutch, 16; Norwegian, 14; French, 12; Belgian, 12; Portuguese, 5; Danish, 4; Spanish, 3; Hawaiian, 2; Japanese, 2; Italian, 1; Argentine Republic, 1; total, 316, with a total gross tonnage of 1,115,455.45.

Total number of new life-preservers examined.....	60,848
Found deficient and rejected.....	37

Number passed.....	60,811
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Total number of examinations of applicants for masters' and pilots' licenses.....	1,627
Number rejected.....	72

Number passed.....	1,555
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Under the act of Congress approved January 22, 1894, 6,135 iron and steel marine boiler plates were tested at the mills, of which 558 were rejected for various defects. There were also 2,344 steel bars tested for brace bolts.

The Supervising Inspector-General renews his recommendations in behalf of legislation to secure a nonpartisan service and permanent tenure of office, except for incompetency, misconduct, or permanent physical or mental disability.

COAST AND GEODETIC SURVEY.

The progress made in this branch of the Service will be fully detailed in the annual report of the Superintendent, which is required by law to be transmitted to Congress in December.

In the prosecution of the hydrographic work during the year, especial attention has been directed to the localities where the interests of commerce are most important. It has been found most advantageous to concentrate as large a force as possible in such localities and to keep the parties in the field during the whole of the season available for work. By this plan the necessary surveys are rapidly completed with greater economy of expenditure than could be attained by employing a number of small parties season after season in widely separated portions of the coast, and the results can also be more promptly given to the public. With this idea, the form of the appropriation for field work was modified by the substitution of a few comprehensive items for many small ones, thus permitting the exercise of some discretion in the assignment of parties.

Among the important operations of the year may be mentioned the following: The resurvey of Buzzards Bay, Massachusetts, has been com-

pleted; the resurvey of Chesapeake Bay has occupied a number of parties during the greater part of the year, and it is making satisfactory progress; the survey of Lake Pontchartrain, Louisiana, has been completed; the resurvey of San Francisco Bay is nearing completion, the more important portions having already been covered by the hydrographic and topographic work.

The recent rapid development of the Territory of Alaska, due in a great measure to the gold discoveries in the Klondike region, and the consequent large influx of population and increase in the carrying trade, were regarded of such importance as to call for special surveys along the coast, and to that end an appropriation of \$100,000 was made by Congress at its last session. At the opening of navigation in the spring three parties were fitted out and sent to Alaska. One of these parties was directed to make an exploration and survey of the delta of the Yukon River, the chief waterway to the interior, with a view to the discovery of a better and deeper channel into the river than that now used. At present, not more than five feet of water can be carried through what is known as the Aphoon mouth of the river, the only channel used by vessels, while a much greater depth of water is found after getting into the river. The second party was directed to survey the coast in the vicinity of the Copper River, and the third to make a topographical reconnaissance of the country adjacent to Chilkat and Chilcoot passes, this work having an important bearing on the question of the boundary line between Alaska and the British Possessions. Hydrographic surveys along the Alaska coast have made excellent progress, and charts of the localities most frequented by vessels are being perfected as rapidly as possible. A new steamer for use in Alaska and the Aleutian Islands is now in course of construction, and will greatly facilitate this important work.

Soon after the declaration of war with Spain all naval officers assigned to duty on the Coast and Geodetic Survey were detached. Owing to the fact that many of the civilian officers of the Survey were experienced in hydrography, it was possible to supply the places of most of the naval assistants without any material interruption of the work. Two of the vessels of the Survey, the *Blake* and the *Bache*, were temporarily assigned to duty under the Navy Department, and were engaged for some time in special surveys at Key West and Tortugas, and were occasionally employed as transports and dispatch boats. Upon their return north, the naval officers on board were detached. The steamers *Patterson* and *Gedney*, at San Francisco, were transferred to the Navy Department by order of the President, but, no occasion for their use by that Department arising, they were shortly afterwards retransferred to the Treasury Department. During the war the general issue of the charts and publications of the Survey was suspended, both as a precautionary measure and because the pressing demand for charts for the use of a large number of naval vessels was such as for a time to

greatly tax the resources of the office. An allotment was made from the appropriation for national defense to provide a small additional force for this work, and this was afterwards supplemented by a special deficiency appropriation.

The party sent out toward the close of the last fiscal year to survey the Pribilof Islands, Alaska, returned in November, 1897, having completed the topographical survey of St. Paul, St. George, Otter, and Walrus islands, together with detailed surveys of the seal rookeries on the islands of St. Paul and St. George. The results of this work have been published and copies furnished to the Departments interested.

One of the most important operations of the Survey, both from a practical and a scientific point of view, is the geodetic connection of the surveys of the Atlantic Coast with those of the Pacific Coast, which has been accomplished by the practical completion of the transcontinental belt of triangulation along the thirty-ninth parallel. This triangulation furnishes an accurate basis for future topographical, geological, or other State or general surveys, and will give the length of an arc of the parallel extending over 48 degrees of longitude.

The determination of the heights of some of the primary triangulation stations in California and Nevada by observations of double zenith distances and lines of spirit leveling and their reference to the sea level have been completed during the year. The determination of the geographic positions of important points throughout the country by latitude observations and telegraphic exchanges of time signals for longitude has made good progress.

Reconnaissance is now being made for the extension of the primary triangulation along the ninety-eighth meridian in Kansas and Nebraska and in Texas. This triangulation, when joined with similar work to be undertaken by the Canadian and Mexican governments, will form a meridian arc of far greater extent than any heretofore measured, extending through 50 degrees of latitude. The measurement of such an arc with instruments and methods of a refinement unknown in earlier geodetic work will furnish valuable data for more accurately determining the size and figure of the earth, and at the same time will serve as an accurate framework for future local or governmental surveys. The transcontinental line of precise levels has been extended from Ellis, Kans., to Hugo, Colo., and from Hugo toward Colorado Springs. Observations of magnetic declination, dip, and intensity at various points throughout the country have been continued.

The Survey is often called upon to decide in questions relating to boundary lines, in which it is essential that the magnetic declination at some former period should be accurately known, and many requests for information on this subject are received. In connection with this work, meridian lines for the use of local surveyors have been established and permanently marked at county seats in many of the States, and magnetic

ranges for the correction of ships' compasses have been determined at several of the important seaports.

Observations of tides with automatic gauges have been continued at Fort Hamilton, New York Harbor; Reedy Island, Delaware; Washington, D. C.; Morehead City, N. C.; Fernandina, Fla.; San Francisco, Cal., and Bremerton, Wash. (at the latter place through the courteous cooperation of the Navy Department), for use in the compilation of the tide tables published annually, and automatic tidal indicators have been maintained at Fort Hamilton, New York Harbor, and at Reedy Island, Delaware River. Another will soon be erected at San Francisco Bay. The collection of data for the Coast Pilot of the coasts of the United States has been continued and new volumes are issued when necessary.

For the purpose of making surveys and examinations needed in the settlement of disputed points in the boundary line between the States of Maryland and Virginia, two officers were detailed in the autumn of 1897, one reporting to the governor of Maryland and the other to the governor of Virginia. Upon the completion of this duty, toward the close of the fiscal year, the officers detailed reported to the Superintendent for employment in the regular work of the Survey.

Cooperation with the international geodetic association has been maintained, and the usual annual contribution has been paid through the ambassador of the United States at Berlin. At the request of the association, examinations have been made, with a view to the selection of suitable stations for observing the variation of latitude. An officer of the Survey was sent as delegate on the part of the United States to the meeting of the association held at Stuttgart in October, 1898. The association has been furnished, in compliance with its request, with statistics of the measurement of primary base lines and the determination of astronomical latitudes, longitudes, and azimuths by the Coast and Geodetic Survey for the years from 1895 to 1898.

The acquisition by the United States of Puerto Rico and the Hawaiian Islands will render necessary the extension of surveying operations to include the new territory, and information is being gathered with a view to the commencement of such surveys as soon as means are available.

The permanent force of the Survey remains essentially the same, although it has been found advantageous to make a readjustment in the salaries of some of the office employees, and to increase the number employed in the entering grade of the field force, so as to provide a class of qualified young men from which the more responsible positions in the force of field officers may be recruited when necessary. Vacancies occurring in the permanent force have been filled by requisition on the Civil Service Commission, and the employees thus obtained have proved generally efficient and satisfactory.

The work of the Coast and Geodetic Survey is closely correlated with

that of the other Departments, and its charts and publications are used by the vessels of the Navy, the Light-House Board, and the Fish Commission. Copies of surveys and data are furnished to the United States engineers, who in return supply information relating to river and harbor improvements for use in the correction of charts. Special surveys of the entrance to Brunswick Harbor, Georgia, and at Charleston, S. C., have been made during the present fiscal year by an officer of the Survey at the request of the War Department. Surveys at Key West and Tortugas have been made for the Navy Department, and speed trial courses for naval vessels laid out in several localities.

The work of the computing division, the tidal division, and the drawing and engraving division has been satisfactorily advanced, and has kept pace with the work in the field and with the demands for information from other Departments and from private individuals. The work of the hydrographic division, the disbursing office, and the Office of Standard Weights and Measures, under the immediate direction of the Superintendent, has been efficiently conducted. The clerical work of the office has been performed in a satisfactory manner.

The publication of monthly notices to mariners, containing important information relating to charts, sailing directions, and reported dangers to navigation along the coasts, has been continued, and upward of forty-eight thousand copies have been distributed during the fiscal year.

The net proceeds of sales of charts was \$13,645, as against \$9,731 for the previous year. This great increase in the issue of charts was due, in the first place, to the mining excitement in Alaska, which created an unusually large demand for charts and maps of that Territory, and afterwards to the preparations for the war with Spain and its subsequent prosecution, which caused an immediate need for large numbers of charts for the use of the military authorities, the demand from the Navy Department being especially urgent. With a small additional emergency force, the office was able to supply without delay the charts needed for the vessels of the Navy.

Several new maps and charts of special localities in Alaska have been published to meet the popular demand. Besides a large amount of work in progress and a number of new editions of charts, 12 new copperplate charts have been completed during the year and 26 new charts have been published by photolithography. Of the latter, 52,476 copies have been printed; 78,995 copies of charts have been printed in the office from copperplates; 55 electrotypes plates of charts have been completed, and a large number of photographic reductions and copies of charts made in the photographic department. For six weeks during the latter part of the fiscal year the plate-printing office was kept in operation day and night in order to keep up with the demand.

In the instrument division the inventories of property have been kept up, and a large amount of work done in the construction of instruments and apparatus, the repairs of those already in use, the packing

of instruments for transportation, the purchase of new instruments, and miscellaneous work of various kinds.

Office of Standard Weights and Measures.

In the Office of Standard Weights and Measures important service has been rendered to the Customs Division of the Treasury Department in the matter of examining, testing, and standardizing the instruments and apparatus used for the polariscope analysis of imported sugars for the imposition of duties. Work on the standards for electrical measure has made satisfactory progress, an appropriation having been obtained from Congress for the purchase of the necessary instruments and apparatus. Much of the time of this office has been devoted to the comparison of weights and measures for manufacturers, surveyors, engineers, and others who require great precision in their work. Requests for such service become more frequent as the functions of this office and its facilities for accurate work become more widely known.

LIGHT-HOUSE ESTABLISHMENT.

The usual routine of this branch of the public service was naturally much disturbed by the war with Spain, and the maintenance of the aids to navigation along our extended seacoast, under the unusual and changing conditions incident to a state of hostilities with a foreign power, called for extraordinary exertions on the part of the officers and employees charged with this duty.

In anticipation of a state of war, the Light-House Board prepared a detailed memorandum, outlining the special work and dispositions that would be necessary to put the Service in shape to meet the new conditions and to enable it to cooperate with those branches of the military and naval services charged with coast defense and to act as an auxiliary to those services as far as possible. This memorandum met with my approval, and copies were sent to all officers in charge of coast districts and to the Secretaries of War and of the Navy. In general terms, the program outlined contemplated putting all important seacoast light stations and those near the entrances to important bays and harbors in telephonic or telegraphic communication with the local offices and with the existing telegraph and telephone lines of the War Department, Life-Saving Service, Navy Department, Weather Bureau, and with the commercial lines. Signal flags were to be supplied to the keepers of coast stations and special arrangements were made for the delivery and transmission of messages. All vessels were to be put in repair, and arrangements were to be made to promptly extinguish lights and remove buoys. Arming of the tenders was to be provided for if found necessary, and all officers and employees were directed to cooperate to the fullest extent with the local military and naval authorities. Assistance was especially directed in establishing and protecting the sub-

marine mine defenses of the harbors and in adapting the system of lights to the conditions which were imposed by the mines. By letter of March 25, 1898, the Secretary of the Navy was advised that six of the vessels of the Light-House Service were available for naval service, and four of these were subsequently detailed for this duty. They were specially fitted out with rapid-fire guns and torpedoes, etc., and some of these vessels rendered conspicuous service during the war.

April 6, upon recommendation of the Light-House Board, a request was made that \$75,000 of the appropriation of \$50,000,000 for national defense be allotted to the Light-House Board for establishing communication with light stations, as outlined in the memorandum already referred to, and for general purposes connected with the public defense. This recommendation received the approval of the Secretary of War and of the President.

An allotment of \$38,500 from the same appropriation was also made to enable the Light-House Board to charter vessels to distribute supplies to light stations in place of those assigned to naval service, and for other expenses incident to this purpose.

Under the allotment for communications, etc., 92 miles of land telephone and telegraph lines were built, 43 miles of submarine cable were laid, connections were made with 78 light stations along the Atlantic and Gulf coasts, and most of these stations were fitted out with signal flags, masts, code books, and marine glasses, to enable them to exchange signals with vessels and to communicate readily with local headquarters. In several of the important harbors assistance was rendered by the tenders of the Light-House Service in planting the submarine mines. One tender that remained on light-house duty was provided with small arms for the crew.

By using two of the self-propelling steam light-ships as tenders and sending supplies by commercial lines of transportation as far as practicable, the Service was maintained without chartering additional vessels.

The personnel of the Service experienced many changes previous to and during hostilities. In March three members of the Board were relieved and assigned to command of squadrons or vessels of war. These were Commodore (now Admiral) Schley, the chairman, who took command of the "Flying Squadron;" Captain Evans, assigned to command of the Iowa, and Commander Wilde, who took command of the Katahdin. Colonel Gillespie was appointed Brigadier-General of Volunteers, but was not relieved as member of the Board. The name of the Engineer Secretary was transmitted to the War Department as available for immediate duty in the field, but he was not called upon for military duty during the war. A number of district inspectors were also assigned to duty at sea, and temporary arrangements were made by assigning retired officers of the Navy or the district engineers to inspection duty.

At most of the important seaports of the Atlantic, Gulf, and Pacific

coasts the harbor lights were extinguished in whole or in part, and proper notices to mariners issued upon receipt of advice from the War Department that the ports had been closed to night navigation on account of the submarine mine defenses.

Notice to mariners was also issued that all the light vessels stationed at considerable distance from shore on the Atlantic Coast might be removed from their stations without further notice, and the Light-House Board took necessary action to provide steel structures which might be placed as day marks or unlighted beacons on the more dangerous outlying shoals in the event that it became necessary to remove the light vessels. This necessity did not, however, arise.

Notwithstanding the unusual conditions, all aids to navigation were maintained in a generally efficient condition, the usual work of supplying and repairing stations and light vessels was carried on, and a considerable amount of construction work under special appropriations was accomplished. During the year a total of 97 new lights, 13 new fog signals, 3 new light vessels, 191 new buoys, and 11 new day marks were established. Two new tenders were completed and put in commission, a large number of light and fog-signal stations, depots, and day marks were extensively renovated, and several tenders and light vessels were practically rebuilt.

Under the special appropriation for oil houses, 16 of these structures were completed during the year.

The work of a general and systematic revision of characteristics of aids to navigation and improvements in lighting and fog-signal apparatus, which was inaugurated last year, was much interfered with by the war with Spain, but considerable progress was made, and with data now available the work of improvement can be prosecuted as rapidly as the appropriations may permit. One improvement of note that has been accomplished is the substitution of a powerful electric flashing light for the two old-fashioned fixed lights at the Highlands of Navesink, entrance to New York Harbor.

The increasing demands of commerce require a continued increase in the estimates under all the general appropriations, as well as in the estimates for additional lights and fog-signal stations, light vessels, and tenders, which must be provided for by special appropriations.

The policy of providing sufficient funds under the general appropriations to enable the Light-House Board to make extensive renovations of existing stations, rather than to leave the more important, and therefore the most needed, work of this character to be done under specific appropriations, has contributed greatly to the efficiency of the Service. Considerable embarrassment has resulted from insufficiency of the appropriation for salaries of keepers, and a deficiency appropriation under this head became necessary to provide for these salaries for the fiscal year.

The estimates submitted for the increase and maintenance of the

Light-House Establishment for the fiscal year 1900 have been carefully prepared and are conservative in amounts. Their careful consideration by Congress is asked.

The recommendation of last year, that provision be made for increased clerical force in the office of the Light-House Board and for more suitable office accommodations in a separate building, is renewed.

The Board has taken the initiatory steps to obtain and compile detailed information in regard to the light-house service in the recently acquired foreign possessions of the United States, with a view of preparing estimates and formulating recommendations for the administration of this portion of the Service at the proper time. This matter will be made the subject of special recommendations at a later day.

LIFE-SAVING SERVICE.

The Life-Saving Establishment, at the close of the fiscal year, embraced 264 stations, of which number 192 were situated on the coasts of the Atlantic Ocean and Gulf of Mexico, 56 on the American coasts of the Great Lakes, 1 at the Falls of the Ohio River, Louisville, Ky., and 15 on the Pacific Coast.

There were within the scope of the Service 402 disasters to documented vessels, having on board 3,113 persons, of whom only 12 were lost. The estimated value of the vessels was \$5,861,320, and that of the cargoes \$1,307,070, making the aggregate value of property imperiled \$7,168,390. Of this amount, \$6,410,530 was saved and \$757,860 lost. The number of vessels totally lost was 59.

The number of disasters to undocumented craft, comprising sailboats, rowboats, scows, etc., was 365, involving 874 persons, 10 of whom perished. The value of property involved is estimated at \$199,705, of which amount \$177,825 was saved and \$21,880 lost.

The following statement shows the aggregate number of disasters and their results:

Total number of disasters.....	767
Total value of property involved.....	\$7,368,095
Total value of property saved.....	\$6,588,355
Total value of property lost.....	\$779,740
Total number of persons involved.....	3,987
Total number of persons lost.....	22
Total number of persons succored at stations.....	663
Total number of days' succor afforded.....	1,328
Number of vessels totally lost.....	59

The total number of disasters during the year was much larger than appears in the records of any former year. It is noted, however, that the loss of life was only 22, as against 53 during the year 1897, when the total number of disasters was not nearly so great, and is considerably less in proportion to the number of disasters than in any previous year.

Besides the number of persons saved from vessels of all kinds, 56

others, who had fallen from wharves, piers, etc., were rescued under circumstances of such peril as must have proved fatal in many cases but for the prompt and skillful aid of the surfmen.

The life-saving crews saved and assisted to save during the year 471 vessels, valued with their cargoes at \$2,868,655. Of these vessels, they saved without outside assistance 349, valued with their cargoes at \$861,700, with a loss or damage of only \$8,380. In the remaining 122 instances they united with other agencies—wrecking vessels, tugs, revenue cutters, etc.—in saving property valued at \$1,980,490, out of an amount imperiled estimated at \$2,006,955.

Assistance of minor importance was rendered to 430 other vessels in distress. The crews also warned from danger 226 vessels, 215 by night signals and 11 by day signals. The loss of life and property thus averted can not be estimated, but that many disasters were prevented is evident from the circumstances under which the warnings were given.

The net expenditure for the maintenance of the Service for the fiscal year was \$1,497,676.35. The sum of \$70,000 was appropriated for the maintenance of the stations as coast signal stations during June and July, on account of the war with Spain, of which \$56,952 was expended. This expenditure is included in the sum above stated as the cost of maintaining the Service.

Six new stations, located, respectively, at Damariscove Island, Maine; Salisbury Beach, Massachusetts; Old Harbor, near Chatham Beach, Massachusetts; Isle of Wight, north of Ocean City, Maryland; Lake View Beach, near Port Huron, Michigan; and Petersons Point, Gray's Harbor, Washington, were completed during the year. All, with the exception of the station at Petersons Point, have been equipped and placed in commission. There has been some unavoidable delay in equipping the latter station, but it will soon be ready for service.

Contracts were also entered into for the construction of two other stations, one at Great Boars Head in the town of Hampton, New Hampshire, and one at Sandy Point, on the north end of Block Island, Rhode Island. These are now approaching completion.

The stations at Mantoloking, Island Beach, Ship Bottom, Little Egg, Brigantine, Pecks Beach, Corson Inlet, and Holly Beach, New Jersey, having become unserviceable by reason of age, and not being adapted to the present demands of the Service, are being replaced by new and appropriate buildings. A new station is also under construction on Hog Island (Broadwater), coast of Virginia, in place of the old one, no longer suitable.

Extensive repairs and improvements have been made to stations in the First district, coasts of Maine and New Hampshire, and in the Ninth district, coasts of Lakes Ontario and Erie.

The telephone lines of the Service have been considerably extended and much improved. The old line along a large portion of the New Jersey coast, which, from its trying location and contiguity to other

lines, including electric-light and trolley wires, was particularly liable to derangement, has been superseded by a new metallic circuit, which is working admirably, and other improvements and safeguards have been provided elsewhere as far as possible. Copper wire is being substituted for galvanized-iron wire on the coasts of Cape Cod, Long Island, Delaware, Maryland, Virginia, and North Carolina as rapidly as possible.

The facilities heretofore afforded by the telephone system to maritime exchanges and other commercial interests have been enlarged and perfected as conditions have permitted. Information of all disasters of consequence, occurring within the scope of the Service, is now promptly transmitted to the general telegraph system of the country, by which means it speedily reaches all important commercial centers. The lines now extend along the coasts a distance of about 800 miles, and nearly all the stations in the Service are thus brought within ready communication with each other, with the district offices, and with headquarters at Washington.

The possibility of hostile demonstrations along the Atlantic and Gulf seaboard, after the declaration of war between Spain and the United States, directed the attention of the Government to the necessity of a line of coast signal stations. It was necessary that these should be sufficiently numerous and near the coast to immediately discover the presence of the enemy's vessels and to receive and impart information from or to American vessels in the offing, as well as to communicate with headquarters in Washington without delay. The immediate availability of the life-saving stations was suggested. The result was that of the 233 coast signal stations established, 139 were life-saving stations, a special act of Congress, having been passed upon the recommendations of the Secretary of the Navy and the Secretary of the Treasury, authorizing such stations as might be found necessary to be kept open and manned during the months of June and July, when they would otherwise have been closed.

The special adaptation of the stations and their instant availability consisted in the fact that they were already well located, manned by men trained to the necessary duties, and familiar with the signals of the international code. The crews were required in any event to patrol the beaches adjacent to their respective stations every night, and in thick weather during the day, as well as to maintain a constant day watch in fair weather, and any information they might obtain could be immediately transmitted to the headquarters of the Army or Navy at Washington through the telegraph and telephone system above described. Fortunately they were not called upon to note the appearance of an enemy, but the value of their presence as a measure of safeguard is in no wise diminished. The Superintendent of the Coast Signal Service reports that the system would have been entirely adequate to perform any duty of the kind which might have arisen, and that it served a

valuable purpose in keeping the Navy Department advised of the movement of Government vessels, etc., the service rendered in some instances being of great importance.

Although established as a peace organization in the interests of commerce and humanity, the facility with which the life-saving stations were utilized as military outposts forcibly calls attention to the fact that the Government, without realizing it, had equipped itself in time of peace with a practical coast guard, instructed and drilled in every essential requirement for duty in case of war, and affords the gratifying assurance that in this respect at least no emergency in the future can be so sudden as to find the country unprepared, while nothing whatever is added to the expense of the military arm when the nation is at peace.

STATE BONDS OWNED BY THE UNITED STATES.

The attention of Congress is again invited to the nonpaying State stocks and bonds formerly in the Indian trust fund and now belonging to the United States.

It is recommended that legislation be enacted by which settlements may be effected and collections made of the amounts due. Under laws of recent date the cases of Arkansas and Tennessee are now in process of settlement.

Following is a statement of the stocks and bonds now in the Treasury :

Arkansas.....	\$160,000.00
Florida.....	132,000.00
Louisiana.....	37,000.00
North Carolina.....	58,000.00
South Carolina.....	125,000.00
Tennessee.....	335,666.66½
Virginia.....	594,800.00
Total.....	1,442,466.66½

A settlement has already been effected with Arkansas pursuant to the authority conferred in the act of Congress of August 4, 1894 (28 Stat., p. 229), as approved by the act of April 29, 1898 (30 Stat., p. 367). A compromise was made with the State in which certain deductions and credits were allowed for the claims of the State against the United States, and the debt of the State reduced thereby \$633,000, leaving a balance of \$160,000 due in bonds bearing interest at 6 per cent, to be paid by the State on or before maturity of the bonds, January 1, 1900. There was received from the State in cash and covered into the Treasury during the fiscal year 1898, as a part of the settlement, the sum of \$34,172.

In regard to the indebtedness of the State of Tennessee, the joint resolution of Congress, approved May 12, 1898 (30 Stat., pp. 742, 743), provides for the adjustment of the claims between the United States and the State, with directions that any settlement or compromise effected by virtue of said act shall be reported to Congress for its action and

approval, and the case is now being considered preparatory to a report to Congress thereon.

A history of these State stocks and bonds may be found in House Doc. No. 263, Fifty-fourth Congress, second session.

PUERTO RICO.

An important question, which will no doubt demand consideration in Congress at an early day, is the money situation in Puerto Rico. The existing currency of that island consists of silver coins known as pesos and centavos. The peso is of the weight and fineness of the Spanish piece of 5 pesetas and corresponds in both respects to the 5-franc pieces of the Latin Union. Its bullion value, compared to the bullion value of the American dollar, is as 93.5 is to 100. The centavo is one-hundredth of a peso, and the smaller coins consist of pieces of 20 centavos and 40 centavos, these being the exact counterparts in weight and fineness of the Spanish pieces of 1 and 2 pesetas and the French coins of 1 and 2 francs.

The Puerto Rican coins bear no fixed relation to gold, not being anywhere redeemable in the yellow coin. They were introduced into the island by Spain in 1895, and by a forced exchange were substituted for Mexican coins, which had previously constituted the principal money medium. The best estimates obtainable place the volume of this silver money now circulating in Puerto Rico at 5,500,000 pesos. The fact that the Spanish Government put the same quantity of fine silver into the peso as it did into the 5-peseta Spanish coin indicates a purpose to have maintained the two on a parity. If so, the purpose was not accomplished; the Puerto Rican coins quickly fell below the value of the coins of the home government, and have since had no established relation in value to them. The oscillation in value as related to gold coin has been constant, rising and falling, as affected by the state of exchanges between Puerto Rico and its foreign markets.

It is unnecessary here to point out at any length the general evil results upon industry and commerce of a currency medium so out of harmony with the world's money as to induce a widely fluctuating rate of exchange. It may be instructive to consider them as illustrated in Puerto Rico. Situated as that island now is, with a circulating medium void of any established relation to the world's money of commerce—gold—it is exposed, to the fullest extent, to such evil results. A brief statement of facts will make this apparent. Dating back to 1894, the peso has oscillated in its power to buy sterling bills on London, or bills on New York payable in American money, as follows: In 1894 the average value of the peso, thus tested, was 65.76 cents; in 1895 it was 60.38; in 1896 it was 63.95; in 1897 it was 60.10; in 1898 it was 58.70. But these averages by no means represent steady, continuous values. Each year, each day of the year, the fluctuation has been wide. The

limit of this fluctuation was, in 1894, 18 per cent; in 1895, 20 per cent; in 1896, 10 per cent; in 1897, 11 per cent.

Upon this wavering, uncertain, variable money medium the commercial and industrial affairs of the island have been conducted. The determining influence upon the value of Puerto Rican money seems to have been the state of the foreign exchanges. When exports of island products—sugar, tobacco, and coffee—were large, the desire to convert the value of these products, realized abroad, into the domestic money, creating as it did an extra demand for it, caused the peso to rise, or, what is equivalent, it caused exchange to fall. From whatever point viewed, the result was the same in its effect upon the producer—he was deprived of a just realization on his products. This unfortunate currency condition was a tax upon his enterprise and industry.

Contrariwise, when foreign bills were not in supply, because crops had been marketed, and when those engaged in importing wares and merchandise from abroad were under necessity of settling their accounts in London or New York, the offering of domestic money to the bankers and brokers in exchange for drafts on London or New York increased in volume, exchange rose in price, or, what is equivalent, the peso fell in its power to exchange for the world's money.

Whichever way looked at, the effect was the same in raising to the merchant, and through him to the consumer, the cost of all products purchased abroad. The domestic and the wage-worker were the unconscious but the real victims of these financial derangements. The only beneficiaries were the speculator and the exchange dealer, for to these two it is an axiom that the wider the range of fluctuation, the greater the range for possible profits.

It is highly important that American capital should find no obstacles in its transfer to and from Puerto Rico, if the United States and the island alike are to reap the benefits which ought to flow from their proximity, their new relations, and from the enterprising commercial spirit of our people. A wide difference in the rate of exchange, occasioned by the use of a differing and unrelated currency, is a serious obstacle to the transfer of capital, as it is to legitimate industry. The obstacle can and ought to be removed.

It is therefore suggested that, at the proper time, action be taken by Congress to assimilate the currency of Puerto Rico to that of the United States, so far and so rapidly as this can be done without unduly disturbing existing conditions and contract relations in Puerto Rico. This, it is believed, can be accomplished by making customs dues in the island payable in American money, yet receiving the silver pesos and centavos at a fixed relation to our dollar. The limited amount of Puerto Rican money would thus find an important avenue where a uniform value on the basis arranged would be realized. This avenue would probably be broad enough to give the assurance needed to keep the peso and its minor subdivisions current through the island at the

excuse, I submit this additional thought for such consideration as it may merit. The present Puerto Rican coins carry the emblems of Spanish sovereignty. Whether or not additions to the coinage be made, new coins should be struck, of the same weight and fineness, upon which should be imprinted proper emblems of our new relations, and these should be substituted for the old. By melting up the old as they come in and by paying out the new, such a substitution can be easily and quite rapidly effected. Gradually, custom and use would establish American money, whether of silver, gold, or paper, as the medium of exchange and payment.

Then, it may be expected that the present Puerto Rican money will not be called for, American money and American terms of account and payment having superseded those now in use. Then, upon the Government—either of the island itself or upon the United States Government, as may be determined—the loss will fall resulting from the redemption of the Puerto Rican coins at an overvaluation. If the peso be rated at 60 cents, as herein suggested, and if the bullion in the coin remains at its present value of 40 cents, and, lastly, if the amount of the silver money referred to be correctly estimated at 5,500,000 pesos, the loss would amount to \$1,100,000 American money. This would be the ultimate cost of relieving the island from the grievous ills of a bad currency system. The benefits would be immediate, and, it may be hoped, would be continuous for all time. The cost, when it began to be experienced, would be distributed over a series of years, and might easily be covered by proper appropriations from the revenues of the island.

The necessity of securing stability to the peso is fully recognized by all parties in Puerto Rico, although opinions differ as to the ratio which ought to be observed in relating it to American money. Suggestions have also appeared in favor of an immediate and coercive exchange of the insular coins for our money upon a ratio to be determined. While this could be made operative to introduce American money and American terms of account at an earlier period than by the course above recommended, it is open to some objections. It would throw confusion into the minds of the simpler-minded people and excite suspicion as to the purity of our intention. It would create an immediate deficit for the difference between the bullion value of their coins and the price for which they were exchanged. This deficit would have to be faced and provided for at once, while by the slower process that deficit would be spread over a period of years, and could be more easily met.

I have so far spoken as if silver coin were the only medium of exchange in Puerto Rico. Such is not the fact. The Spanish Bank of Puerto Rico, holding a franchise from the Spanish Government, has been privileged to issue its notes to the extent of three times its capital, and the note issues of this bank at one time outstanding have been as high as 2,500,000 pesos. Under the circumstances now existing the notes of

the bank are not in favor, and it is not improbable that its affairs will be liquidated. This being so, the function which it has in the past discharged should be assumed and prosecuted, within proper legal limitations, by some one bank organized with ample capital and with the right to establish branches at convenient points, and to issue its own notes to circulate as money. Or, if this should not be favorably considered, then an act extending to the island the rights and privileges of the national banking system might merit approval.

NEW BOND ISSUE.

Under the caption of Loans and Currency, on page XXIV of this report, will be found particulars (in the way of information) as to the issue of \$200,000,000 3 per cent bonds, authorized by the act of June 13, 1898. When the bill was reported, which after amendment became the law, some doubt was expressed by those best acquainted with such matters whether bonds bearing so low a rate as 3 per cent could be sold except at a discount. There were substantial facts cited in support of such opinion. The then recent declaration of war with Spain had disturbed the always sensitive conditions of trade and finance. The morbidly timid along our eastern and northern coast were in a state of more or less alarm. The simpler-minded depositors in savings banks made withdrawals of their funds; the commercial banks in the larger cities sympathetically suffered through loss of cash reserves to savings institutions. The rate of interest rose; the price of securities declined. Even old issues of United States bonds fell to a point where they would yield to the investor from 3.1 to 3.25 per cent per annum upon an investment then made. Such was the condition of the financial market in the latter part of April and the earlier part of May last.

There was another factor, however, which operated to insure a successful negotiation of the new loan at 3 per cent, which it is well to note. That factor was the self-interest of national banks. These institutions as a whole then enjoyed an unavailed-of privilege under the law to issue nearly four hundred millions in circulating notes. True, the condition precedent to the exercise of such privilege was the deposit of United States bonds, the price of which in the public market had so advanced as to destroy the motive of profit for the exercise of the privilege. Owing to the feature of the national banking act which restricts the issue of circulating notes to 90 per cent of the face of the bonds deposited as security, a 3 per cent interest bond at par, when used for the purpose indicated, yields better returns to the banks than 4 or 5 per cent bonds at the rate of premium then or now prevailing. It is demonstrable that the 3 per cent bonds at par would afford to national banks the means of obtaining through circulating notes a profit of substantially 1.4 per cent on the amount invested. That this profit would furnish a sufficient motive for the banks as a whole to take up \$200,000,000 in bonds need not be argued; it is self-evident. These

conditions practically insured the successful negotiation at par of the loan at the rate of 3 per cent. This was quickly perceived in the money market, and, joined to easier conditions in general finances, it operated to establish a prospective premium on the anticipated issue; in fact, at the moment when the act was approved, the whole issue of \$200,000,000 could have been sold at a premium of probably $2\frac{1}{2}$ per cent. This could hardly have been foreseen, and it was evidently the opinion of Congress also that a wide distribution of the obligations among the people, at the uniform price of par, was of more value to public interests than the realization of a possible bonus from small groups of professional dealers. The discriminating mandate of the law was thus expressed:

The bonds authorized by this section shall be first offered at par as a popular loan under such regulations, prescribed by the Secretary of the Treasury, as will give opportunity to the citizens of the United States to participate in the subscriptions to such loan, and in allotting said bonds the several subscriptions of individuals shall be first accepted, and the subscriptions for the lowest amounts shall be first allotted.

Obedient to the fair spirit of the law, the Treasury Department sought by every means to extend the opportunity for subscription to all the people. Every newspaper in the United States was supplied with interesting and instructive information relative to the issue, which, with few exceptions, was patriotically and free of charge prominently displayed. Blank forms for subscriptions, with circulars of information, were supplied to more than 22,000 money-order post-offices, every express office, and all the banks. A period of thirty-one days was allowed for the receipt of subscriptions. A summary of subscriptions received, classified as to amounts, is here given:

Subscriptions for \$500 and less.

Less than \$100.....	11, 483
\$100 to \$180.....	14, 974
\$200 to \$280.....	9, 902
\$300 to \$380.....	7, 594
\$400 to \$480.....	7, 698
\$500 only.....	180, 573
Total.....	232, 224

Subscriptions for more than \$500.

\$520 to \$980.....	11, 862
\$1, 000 to \$1, 980.....	25, 152
\$2, 000 to \$2, 980.....	10, 349
\$3, 000 to \$3, 980.....	5, 165
\$4, 000 to \$4, 400.....	5, 223
\$4, 500.....	1, 875
	59, 626
More than \$4, 500.....	28, 376
Total.....	88, 002

The burden of work thus suddenly thrown upon the Department it is difficult to fully comprehend. In the mere matter of names and addresses, the work of writing—by reason of necessary duplication—was

equal to a detailed schedule embodying several millions of names, with the address—town, county, and state—of each fully extended. To accomplish the work imposed, an addition for three months or more of nearly six hundred persons to the regular working force of the Department was necessary. The Bureau of Engraving and Printing was correspondingly overtaxed. The immense increase in the number of bonds of small denominations, as compared with any previous issues, is a partial explanation. The acquisition and installation of twelve high-grade power presses, made in anticipation of increased operations, alone saved that Bureau from a complete breakdown.

That the popular-loan method so successfully used on this occasion gave general satisfaction to the people is beyond dispute. Led to believe—whether justly or unjustly—that on former occasions advantage had been taken of public necessities by intermediaries who made unfair profit between the Government and the people, they hailed with satisfaction this attempt to deal directly with the citizen. There was a great moral value in this, difficult to estimate in terms of money, yet worthy of consideration in the mind of the statesman. Was the operation advantageous, also, from an economic standpoint? As already indicated, a bonus of perhaps five millions could have been secured by offering the loan to competitive bidding. That was the sacrifice made in order to place the loan directly with the people at the uniform price of par.

The act now under consideration was no doubt influenced by the theory, if not definitely shaped on it, that the dissemination of Government securities among the people would attach the holders thereof by closer bonds of sympathy to the Government, and secure from all such a more zealous watchfulness over public affairs; for it is this kind of watchful interest which best secures the welfare and perpetuity of a free state. If this motive operated in the legislative councils, its practical value was not so permanent as could be hoped for. As before stated, allotments were made to less than 325,000 persons, aggregating \$200,000,000. From the moment the bonds were issued until the present time, a movement of concentration has been observable. At this time \$77,361,000, the original holdings of about 116,000 subscribers, have passed into the ownership of 1,001 persons, firms, and corporations. To this extent the moral value of private ownership has already disappeared.

The loan was promptly taken; in fact, it was subscribed for many times over. From this it may be assumed that similar results would follow on future occasions. It will not do to rest securely on such an assumption. In fixing the conditions of a proposed bond as to time and rate of interest, Congress is in essence formulating a proposal. The public—the investor—is yet to determine whether or not the proposal is satisfactory. Congress can not exactly hit the mark in advance. If it determines that the proposed bond shall not be sold at less than par, it must so fix the rate of interest and time of payment as

be repeated in detail. Its rigidity, its failure to meet demands where demand is most urgent, the dependency of the whole industrial structure upon the state of the revenue and public expenditure—these are important links in that chain of argument. Even in a state of foreign war, the civilized demand of both contestants is for due respect to private property and individual contract relationships. How much more in a state of peace, in a free state, should private rights and contract relationships be given immunity from the incidental, though serious, effects now suffered through perturbations in Government finances. The menace to our domestic affairs, several times recurring from a threatened change in the standard under which they are carried on, and our foreign trade settled, has been a companion evil—perhaps the greater of the two.

The cure for these evils is not difficult to find. It lies within the easy range of Congressional action. Nor is the remedy one to inflict even temporary pains or penalties on the body politic. The healthful, stimulating effect of right action in these directions would be experienced with the first sense of assurance that the desired end was to be accomplished.

The proposal to substitute bank issues for Government notes is opposed with many honest prejudices and assailed by bitter denunciations. The first arise from a failure to comprehend the true philosophy of a paper currency, and must be patiently considered. The latter obscure the question by reckless statements, charging that all propositions for currency reform are bank conspiracies to exploit the people. Referring to such proposals, an eminent speaker recently warned his uninstructed hearers: "These banks will become cormorants to eat up your substance, control your politics, and warp the political views in all the communities. Send a man to Congress to help defeat this great evil." Such tirades against reason, and such appeals to prejudice and ignorance, the statesman must oppose by the simple truth. Is a system of bank credit currency, in its ability to meet the varying wants of an industrious commercial people, superior to the issues of Government paper money? If that question be answered affirmatively, it may be safely left to time to show that the nature of the banker differs not at all from the general nature of men in other callings. As every other man who gets an honest living must live by service rendered in the sphere of his activities, so the banker must perform faithfully and well his function or fail of his fair reward. The motives for his action are the same. It is not for the benefit of the banker, or any particular class, that the plea for currency reform is urged; it is urged on behalf of the whole people, who will be the recipients of the benefits thereof. And it is on this ground only that the claim is entitled to consideration.

I shall not be outside of my duty if I venture to point out, in at least one important respect, the advantages to the poorer districts of the country of a properly constituted bank currency. It may be done by fairly describing the course of the financial movement as it now

goes on, and by presenting in contrast the movement as it would go on under the conditions advocated. It is a familiar fact that, in the period of harvesting and crop moving, the currency is strongly drawn from the centers to the country districts. When this movement is over, the currency again tends toward the centers. The currency flows to the center to pay loans occasioned by its use and other general indebtedness, and also to secure the benefit of interest to the country banker for a portion of his funds which in a dull period would otherwise lie unemployed in his hands. At present, the currency so sent consists almost entirely of legal-tender notes and Treasury notes—that is to say, in the money which the law recognizes as lawful reserve. Thus received by the banks in the money centers, it becomes a reserve for deposits in the relation of one to four. Now, deposits may be increased by loans as well as by the deposit of cash. A loan for ten thousand or a hundred thousand goes to the borrower's credit upon the bank's books, and swells the deposit account by so much. True, the borrower may check against this fund, but his check may also be deposited in the same bank, in which case it is a mere transfer to another account; or, if it be deposited in another bank and paid in money by the lending bank, it is still a transfer. The total deposits of all the banks are swelled by this original loan.

In confirmation that this expansive movement is fairly described, I quote from the New York Herald of November 13 as follows: "Comparing yesterday's [clearing house] statement with that of five weeks ago, it appears that the banks hold 13 millions more money, and have expanded their loans by the surprising amount of 51½ millions, the increase in 'deposits' resulting from these two items being no less than 66 millions." It can be easily perceived that this possibility of increasing loans against an inflow of reserve funds in the proportion of four to one is a temptation to which the city bank is likely to yield. It must be remembered that this inward movement of currency from the country occurs at the time of year when commercial activities are the least and the general requirements for the use of loans in the interior are the smallest. The effort of the banks at the centers to increase their loans causes interest to fall. The fall in the rate of interest causes interest and dividend-paying securities to rise. The rise in securities induces speculative buying. The speculative buyer becomes the bank's borrowing customer. The banker is thus enabled to "put out his funds," as he is apt to term it, though he really does no such thing. He keeps his funds, but, in the way described, he swells his deposit liability until his funds on hand are made answerable to the rule of one of cash to four of liabilities, or 25 per cent against his "deposits."

It is in the condition above described, with varying degrees of regularity and intensity, that the financial status is found when the crops in the West and South approach harvest—that is to say, a maximum of loans and deposits; a minimum in cash reserves.

During the season until then, the country banker has found that his drafts and checks on his Eastern correspondents, distributed to his customers, supplied their needs for instruments of exchange and payment; but he finds that for the payment of farm wages, the purchase and transfer of farm products, such instruments are not adequate; cash is required for these purposes, either in metallic money or paper currency. This forces him to make requisition in the form of money by express on his Eastern balances. Nay, more; if crops be large and prices good, he is forced to supplement his own resources by borrowing for a period at the centers. His correspondent at the center, in meeting his requisitions for the money due his country customer, is obliged to take it from what had before constituted his legal reserve. This disturbs the equilibrium of relationships. To recover his position, he turns upon the street and calls in a portion of his loans. If the interior banker, after thus calling for the balances due him, asks in addition for a loan, the city banker is often obliged to inform him that "money is very close" and he can not accommodate him. It must be noted also that the effort of the city banker to restore his impaired reserve by calling money from the street does not accomplish that direct result. There is no money "in the street;" it is all in bank vaults, and the total stock can not be augmented except by inducing it to come in from without. What does result is a forced liquidation, a fall in prices of securities, a rise in interest sufficient to induce outside money to come in. In this process the merchant and the manufacturer find it difficult to negotiate their credits. They also are told "money is tight," and that they must withhold applications for discount favors.

I forbear to follow into further detail the unprofitable and vexatious movement. Gradually, after more or less strain and anxiety, sometimes bordering on panic, sometimes resulting in panic, a readjustment is secured. Crops from the interior—not seldom forced from the producer's hands, with little regard to price, because of his inability to borrow from his local banker—move to the seaboard. The strain on the country is relaxed. Again currency in the form of "reserve funds" moves to the center. Again one dollar thus received becomes effective as reserve for four dollars of liability. Money is quoted easy, as the prospect for summer dullness becomes assured. "The street" breathes easier, stocks and securities become "firm," and the movement toward an expansion in loans, with its attendant phenomenon of an increase in deposits, is again observed, to be again followed by restriction and probable distress as the active season in productive industry and trade again appears.

Whoever has followed this delineation of our financial movement, and those who are familiar with the facts which are thus portrayed, ought not to have trouble in perceiving that the bottom cause of the irregular and deranging effects described is to be found in a fixed volume of paper money clothed with full powers of a legal tender.

Upon this money—itsself a credit obligation—other credit obligations, in the form of bank deposits through bank loans, may be built up in the proportion of four to one. With the volume of paper money thus fixed—with no natural movement toward its retirement when not needed in legitimate trade—the tendency to build the four-story structure upon it as a permanent base is irresistible. The withdrawal of the base by those who really own it causes the structure to vibrate and threatens it with a fall.

Consider now, as briefly as may be, the practical working of a bank-note currency—nonlegal tender—if substituted for the paper money issued by the Government. Verification may be found by those who will look for it in systems now current in France, Germany, Scotland, and Canada; or, if our own records be preferred, the New England system of forty years ago, or those then in vogue in Indiana, Iowa, and Louisiana, will be equally good examples. Under such a system the financial movement may thus be described:

Commencing as before with an inward movement of funds from the exterior to the centers, the money forwarded would then consist largely of bank notes. These received at the centers would not, like the legal tenders of the present, form a base for expansion. The desire to obtain legal money in their place would cause the banks receiving them to push them home for redemption in legal money, but the general effort in this direction would neutralize, to a large degree, the effect desired. Bank A, sending home the notes of bank B, would be met, not by a payment in legal money, but as an offset by the presentation of the notes of bank A. There would be a mutual retirement of their respective bank-note liabilities. Of course, this precision in offsets would not be the rule, but the illustration shows the general effect to be the temporary retirement of a currency when it can not be circulated in the service of the country's trade and exchange. Observe this: The power to lend is not thus lost; it is temporarily suspended. When, with the recurring needs of the interior to handle its products of the farm, the factory, and the mine, the power to issue circulating notes may be summoned into use, then the needs of industry will coincide with the profit-moving motives of the banker, and the full value of this latent power will be experienced, not in the centers, where bank notes are not needed and will not circulate, but in the interior, where raw products are raised, and where the busy wheels of shop and factory certify that labor wages are to be paid.

The power of the bank note, so temporarily suspended, will always be restored in full upon the call of industry. The power of our present currency, on the contrary, is not suspended. It is, as pointed out, inevitably misdirected. It artificially stimulates speculative activity in securities at the centers. It periodically absorbs the credit powers at times when they should be made serviceable to the whole country. It

ministers to the speculator, it prejudices the producer, the merchant, and the manufacturer, though, at last, all suffer from its deranging influences.

These are the reasons, the more important reasons, why our banking system should be reformed and made effective to commercial and industrial needs; and these same reasons, with others not here set forth, call for the elimination, in a safe and proper way, of the injurious interference in our currency system by the legal-tender paper money of the Government.

If it be conceded that the legal-tender money issued by the Government does not possess the qualifications to make it a proper factor in the country's exchanges of products and manufactures; if the fact also be admitted that it is a deranging and disturbing factor in its relation to industry and commerce, then the time has come to substitute for it a currency which will adequately, economically, and safely meet the ever-growing needs of the country, rapidly developing, as it is, in the power of production, in the number of its people, and the importance of its domestic and foreign trade.

Can a bank-note currency be established which will be adequate, economical, and safe, and thus serve, in a better way than is now served, the public needs? Limited by space in this presentation, I point to the countries before named, where these conditions are realized. Our neighbor on the north, Canada, may be cited as a nearby witness in the same direction. With power to issue notes as profitable employment for their use in productive industry can be found, the power has never been overtaxed or exhausted. The rates of interest have varied but little between the richer provinces of Ontario or Quebec and the sparsely settled districts of Manitoba. The terms of interest are substantially as favorable to the farmer of the west as to the merchant of the metropolis.

While these conditions, in contrast with our own, which stimulates the operation of credit at the centers and starves it at the circumference, are due in part to other features of its banking system, the influence of the currency is most important. Certain it is that were bank-note issues in Canada repressed by restrictive laws, as they are with us, and if the field of circulation these notes now occupy were filled with the legal-tender notes of the Dominion, the facilities of banking now enjoyed on the frontiers would not be afforded. The same tendency toward congestion at the centers and scarcity in the outlying districts would be there, as it is here, plainly observable.

It is not intended by anything here said to offer the Canadian system as a model from which we should make exact copy. In certain particulars it would not at present suit our different conditions. The right of the Canadian banks to issue their notes without any special pledge of security for their redemption; the law which gives to the note holder, in case of bank failure, priority of claim over the depositors, while not operative to perceived injury, under their system of large banks with small

branches, might, if adopted here, with a multitude of small banks, each independent of the other, result in an unjustifiable invasion of the equitable rights of the depositor. The dangers in this regard are ably discussed and fully illustrated in the annual report of the Comptroller of the Currency.¹ To his argument nothing need be added. While the question of terms is important in itself, it is nevertheless a subordinate one.

The facts set forth by the Comptroller relate exclusively to the proposition that the notes of a failed bank shall be a paramount lien upon the assets for their full value before any rights accrue to other creditors.

The issue of notes upon the general assets of national banks may be made perfectly secure without the requirement that the notes be a first lien upon their assets. It would only be necessary to award to the note holder the same ratable proportion of the assets which went to other creditors, and to provide that the amount required to pay the difference be obtained by an assessment upon all the national banks, collected ratably in proportion to their share in the circulation of this character. The vital question is, What percentage of assessment upon this circulation would be required in order to cover the losses to note holders in the case of failed banks? The experience of the national banking system demonstrates that the assessment would be insignificant.

The total circulation of failed banks outstanding at the time of failure, up to October 31, 1897, was \$20,893,827. The loss upon these notes, if the security for them had been impaired in the same degree as the security for other liabilities, would have been \$5,379,165, or an annual average of about \$163,000. This loss would have been made good by a tax of about one-twelfth of 1 per cent per year upon the circulation of the solvent banks. A tax of one-fifth of 1 per cent upon the average circulation of the national banks since the foundation of the system would have paid such losses up to October 31, 1897, amounting to \$5,379,165 and left a surplus of about \$9,000,000 in the guaranty fund.

Whether preference be given to the note holder, as in Canada, or he be made to take his share of risk with the depositor, as in Germany, France, and Scotland, or whether the note holder shall be protected by the special pledge of security as now provided in our national banking act, these considerations affect the question relatively, not absolutely. Under either of these conditions provisions may be made which will furnish to the country a paper money adequate to commercial needs, economical to the people, and safe in its general workings.

In the nature of things, the banker is the proper agency for operating this important function. He must have motive for his action or he will not exercise it. Given this motive, he will, like the laborer, the merchant, or the professional man, be diligent in the employment of his powers. That this motive must be the motive of gain does not differ-

¹ See page 191.

entiate the banker from other working forces of society, whose actions are healthful and helpful to the social whole.

In my last report I ventured upon specific recommendations. These recommendations, if adopted and formulated into law, would, in my opinion, be curative of the evils herein pointed out. In House bills 10289 and 10333 are embodied a series of measures in some respects more meritorious. The measures therein proposed are the result of careful study by expert and experienced men. With some modifications—the reasonable fruit of full discussion—they would, I believe, meet the country's needs. I commend the subject to the early and earnest attention of Congress.

WAR TAXES.

The report of the Commissioner of Internal Revenue¹ possesses peculiar interest, indicating, as it does, the operation of the war-revenue act of June 13, 1898. It shows quite clearly that the aggregate revenue to be derived therefrom will form a smaller total than was estimated by the more sanguine of its supporters.

The Commissioner's estimate of \$100,000,000 from this source seems to be fairly justified by the results to the Treasury during the period from July 1 to the present time. His report goes also to show the friction and embarrassments which have arisen from the need of interpreting obscurities in the act itself, and the application of such interpretation to specific cases coming under the same general head, yet differentiated from each other by more or less important particulars. Many complaints have arisen from those unreconciled to such interpretations or applications, and, granted a well-balanced relation between revenue and expenditures, it might be well to consider the propriety of repealing some of the more vexatious features of the act. Until more settled conditions, however, as to extraordinary expenditures for the Army and Navy are reached, even such repeal can not be recommended by this Department. Some verbal amendments, making more clear the intentions of Congress, are to be desired, and representations in this direction may be made the subject of a separate communication to Congress at an early day.

L. J. GAGE,
Secretary.

To the SPEAKER OF THE HOUSE OF REPRESENTATIVES.

¹ See page 239.

TABLE A.—STATEMENT OF THE OUTSTANDING PRINCIPAL OF THE PUBLIC DEBT OF THE UNITED STATES JUNE 30, 1898.

	Length of loan.	When redeemable.	Rate of interest.	Price at which sold.	Amount authorized.	Amount issued.	Amount outstanding.
OLD DEBT.							
For detailed information in regard to the earlier loans embraced under this head, see Finance Report for 1876.							\$151,745.26
TREASURY NOTES PRIOR TO 1846.							
Acts of October 12, 1837 (5 Statutes, 301); May 21, 1838 (5 Statutes, 228); March 2, 1839 (5 Statutes, 323); March 31, 1840 (5 Statutes, 370); February 13, 1841 (5 Statutes, 411); January 31, 1842 (5 Statutes, 469); August 31, 1842 (5 Statutes, 581), and March 3, 1843 (5 Statutes, 616).	1 and 2 years	1 and 2 years from date.	$\frac{1}{2}$ of 1 to 6 per cent.	Par.....	\$51,000,000.00	\$47,002,900.00	(a)
TREASURY NOTES OF 1846.							
Act of July 22, 1846 (9 Statutes, 39)	1 year.....	1 year from date.	$\frac{1}{2}$ of 1 to $\frac{5}{8}$ per cent.	Par.....	10,000,000.00	7,687,800.00	(a)
MEXICAN INDEMNITY.							
Act of August 10, 1846 (9 Statutes, 94)	5 years.....	5 years from date.	5 per cent....	Par.....	320,000.00	303,573.92	(a)
TREASURY NOTES OF 1847.							
Act of January 23, 1847 (9 Statutes, 118)	1 and 2 years	1 and 2 years from date.	$\frac{5}{8}$ and 6 per cent.	Par.....	22,000,000.00	20,122,100.00	(a)
TREASURY NOTES OF 1857.							
Act of December 23, 1857 (11 Statutes, 287)	1 year.....	1 year from date.	3 to 6 per cent.	Par.....	Indefinite....	52,773,900.00	(a)
BOUNTY-LAND SCRIP.							
Act of February 11, 1847 (9 Statutes, 125)	Indefinite....	At the pleasure of the Government.	6 per cent....	Par.....	Indefinite....	232,075.00	(a)
LOAN OF 1847.							
Act of January 23, 1847 (9 Statutes, 118)	20 years.....	Jan. 1, 1868.	6 per cent....	$1\frac{1}{2}$ to 2 per cent. pre.	23,000,000.00	22,230,850.00	950.00
TEXAN INDEMNITY STOCK.							
Act of September 9, 1850 (9 Statutes, 447)	14 years.....	Jan. 1, 1863.	5 per cent....	Par.....	10,000,000.00	5,000,000.00	20,000.00
LOAN OF 1853.							
Act of June 14, 1853 (11 Statutes, 365)	15 years.....	Jan. 1, 1874.	5 per cent....	Av. pre. of $\frac{1}{2}$ to $\frac{3}{4}$ per cent.	20,000,000.00	20,000,000.00	2,000.00
LOAN OF FEBRUARY, 1861 (1861a).							
Act of February 8, 1861 (12 Statutes, 129)	10 or 20 years	Dec. 31, 1880.	6 per cent....	(Av.) 89.03	25,000,000.00	18,415,000.00	5,000.00
TREASURY NOTES OF 1861.							
Act of March 2, 1861 (12 Statutes, 178)	60 days or 2 years.	60 days or 2 years after date.	6 per cent....	Par to 1 $\frac{1}{2}$ per cent. pre.	Indefinite....	35,864,450.00	2,450.00
OREGON WAR DEBT.							
Act of March 2, 1861 (12 Statutes, 198)	20 years.....	July 1, 1881.	6 per cent....	Par.....	2,800,000.00	1,090,850.00	2,500.00

e Including conversion of Treasury notes.

b Including releases.

a Included in "old debt."

TABLE A.—STATEMENT OF THE OUTSTANDING PRINCIPAL OF THE PUBLIC DEBT, ETC.—Continued.

	Length of loan.	When redeemable.	Rate of interest.	Price at which sold.	Amount authorized.	Amount issued.	Amount outstanding.
LOAN OF JULY AND AUGUST, 1861.							
The act of July 17, 1861 (12 Statutes, 259), authorized the issue of \$250,000,000 bonds, with interest at not exceeding 7 per centum per annum, redeemable after twenty years. The act of August 5, 1861 (12 Statutes, 316), authorized the issue of bonds, with interest at 6 per centum per annum, payable after twenty years from date, in exchange for 7-30 notes issued under the act of July 17, 1861.	20 years.....	After June 30, 1881.	6 per cent....	Par.....	\$250,000,000.00	\$189,821,350.00	\$21,860.00
LOAN OF JULY AND AUGUST, 1861.							
Continued at 3½ per cent interest, and redeemable at the pleasure of the Government.	Indefinite....	At the pleasure of the Government.	3½ per cent....	Par.....	.....	.....	2,100.00
OLD DEMAND NOTES.							
Acts of July 17, 1861 (12 Statutes, 259); August 5, 1861 (12 Statutes, 313); February 12, 1862 (12 Statutes, 338).	Indefinite....	On demand....	None	Par.....	60,000,000.00	660,030,000.00	53,997.50
SEVEN-THIRTIES OF 1861.							
Act of July 17, 1861 (12 Statutes, 259)	3 years.....	Aug. 19 and Oct. 1, 1864.	7½ per cent.	Av. pre. of 1866.	Indefinite	139,999,750.00	9,450.00
FIVE-TWENTIES OF 1862.							
Acts of February 25, 1862 (12 Statutes, 345); March 3, 1864 (13 Statutes, 13), and January 28, 1865 (13 Statutes, 425).	5 or 20 years.	May 1, 1867....	6 per cent....	Av. pre. of 1866.	515,000,000.00	514,771,600.00	215,850.00
LEGAL-TENDER NOTES.							
The act of February 25, 1862 (12 Statutes, 345), authorized the issue of \$150,000,000 United States notes, not bearing interest, payable to bearer at the Treasury of the United States, and of such denominations, not less than five dollars, as the Secretary of the Treasury might deem expedient, \$50,000,000 to be applied to the redemption of demand notes authorized by the act of July 17, 1861; these notes to be a legal tender in payment of all debts, public and private, within the United States, except duties on imports and interest on the public debt, and to be exchangeable for 6 per cent United States bonds. The act of July 11, 1862 (12 Statutes, 532), authorized an additional issue of \$150,000,000 of such denominations as the Secretary of the Treasury might deem expedient, but no such note should be for a fractional part of a dollar, and not more than \$35,000,000 of a lower denomination than five dollars; these notes to be a legal tender as before authorized. The act of March 3, 1863 (12 Statutes, 710), authorized an additional issue of \$150,000,000 of such denominations, not less than one dollar, as the Secretary of the Treasury might prescribe; which notes were made a legal tender as before authorized. The same act limited the time in which the	Indefinite....	On demand....	None	Par.....	450,000,000.00	.....	346,681,016.00

Treasury notes might be exchanged for United States bonds to July 1, 1863. The amount of notes authorized by this act were to be in lieu of \$100,000,000 authorized by the resolution of January 17, 1863 (12 Statutes, 822). The act of May 31, 1875 (20 Statutes, 37), provides that no more of the United States legal-tender notes shall be cancelled or retired, and that when any of said notes are redeemed or received into the Treasury under any law, from any source whatever, and shall belong to the United States, they shall not be retired, cancelled, or destroyed, but shall be released and paid out again, and kept in circulation.	Indefinite.	After 10 days' notice.	4, 5, and 6 per cent.	Par.....	150,000,000.00	\$715,099,247.16	2,850.00
TEMPORARY LOAN. Acts of February 25, 1862 (12 Statutes, 340); March 17, 1862 (12 Statutes, 370); July 11, 1862 (12 Statutes, 532), and June 30, 1864 (13 Statutes, 216).	1 year.....	1 year after date.	6 per cent....	Par.....	No limit.....	561,753,241.65	3,000.00
CERTIFICATES OF INDEBTEDNESS. Acts of March 1, 1862 (12 Statutes, 352); May 17, 1862 (12 Statutes, 370), and March 3, 1863 (12 Statutes, 710).	Indefinite.	On presentation.	None.....	Par.....	50,000,000.00	\$368,720,079.51	6,884,752.14
FRACTIONAL CURRENCY. Acts of July 17, 1862 (12 Statutes, 592); March 3, 1863 (12 Statutes, 711), and June 30, 1864 (13 Statutes, 220).	17 years.....	July 1, 1861...	6 per cent....	A 7 per. of 4, 1861.	75,000,000.00	75,000,000.00	7,600.00
LOAN OF 1863. The act of March 3, 1863 (12 Statutes, 709), authorized a loan of \$500,000,000, and the issue of bonds, with interest not exceeding 6 per centum per annum, and redeemable in not less than ten nor more than forty years, principal and interest payable in coin. The act of June 30, 1864 (13 Statutes, 219), repeals the above authority, except as to the \$75,000,000 of bonds already advertised for. Bonds of this loan continued at 3 per cent interest, and redeemable at the pleasure of the Government.	Indefinite.	At the pleasure of the Government.	3½ per cent....	Par.....	.....	.....	100.00
ONE-YEAR NOTES OF 1863. Act of March 3, 1863 (12 Statutes, 710).....	1 year.....	1 year after date.	5 per cent....	Par.....	400,000,000.00	44,520,000.00	31,615.00
TWO-YEAR NOTES OF 1863. Act of March 3, 1863 (12 Statutes, 710).....	2 years.....	2 years after date.	5 per cent....	Par.....	400,000,000.00	166,480,000.00	27,200.00
COMPOUND-INTEREST NOTES. Acts of March 3, 1863 (12 Statutes, 710), and June 30, 1864 (13 Statutes, 216).	3 years.....	3 years from date.	6 per cent compound.	Par.....	400,000,000.00	266,595,440.00	167,920.00

a Including releases.

TABLE A.—STATEMENT OF THE OUTSTANDING PRINCIPAL OF THE PUBLIC DEBT, ETC.—Continued.

	Length of loan.	When redeemable.	Rate of interest.	Price at which sold.	Amount authorized.	Amount issued.	Amount outstanding.
TRINITY OF 1864.							
Act of March 3, 1864 (13 Statutes, 13).	10 or 40 years	March 1, 1874.	5 per cent.	Par to 7 per cent. prem.	\$200,000,000.00	\$196,118,300.00	\$20,050.00
FIVE-TWENTIES OF 1864.							
Act of June 30, 1864 (13 Statutes, 218).	5 or 20 years	Nov. 1, 1869	6 per cent.	A v. pre. of 2 ¹ / ₁₆ .	400,000,000.00	125,561,300.00	15,900.00
SEVEN-THIRTIES OF 1864 AND 1865.							
Acts of June 30, 1864 (13 Statutes, 218); January 23, 1865 (13 Statutes, 425), and March 3, 1865 (13 Statutes, 468).	3 years.....	{ Aug. 15, 1867 June 15, 1868 July 15, 1869 }	7 ¹ / ₈ per cent.	A v. pre. of 2 ¹ / ₁₆ .	800,000,000.00	\$829,992,500.00	123,500.00
FIVE-TWENTIES OF 1865.							
Acts of March 3, 1865 (13 Statutes, 468), and April 12, 1866 (14 Statutes, 31).	5 or 20 years.	Nov. 1, 1870....	6 per cent.	A v. pre. of 2 ¹ / ₁₆ .	Indefinite.....	203,327,250.00	21,850.00
CONSOLS OF 1865.							
Acts of March 3, 1865 (13 Statutes, 468), and April 12, 1866 (14 Statutes, 31).	5 or 20 years.	July 1, 1870....	6 per cent.	A v. pre. of 1 ¹ / ₁₆ .	Indefinite.....	332,998,950.00	75,850.00
CONSOLS OF 1867.							
Acts of March 3, 1865 (13 Statutes, 468), and April 12, 1866 (14 Statutes, 31).	5 or 20 years.	July 1, 1872....	6 per cent.	A v. pre. of 1 ¹ / ₁₆ .	Indefinite.....	379,618,000.00	133,700.00
CONSOLS OF 1868.							
Acts of March 3, 1865 (13 Statutes, 468), and April 12, 1866 (14 Statutes, 31).	5 or 20 years.	July 1, 1873....	6 per cent.	A v. pre. of 1 ¹ / ₁₆ .	Indefinite.....	42,539,350.00	16,450.00
THREE-PER-CENT CERTIFICATES.							
Acts of March 2, 1867 (14 Statutes, 553), and July 25, 1868 (15 Statutes, 183).	Indefinite...	On demand ...	3 per cent.	Par	75,000,000.00	\$ 85,155,000.00	5,000.00
FIVE-PER-CENT LOAN OF 1881.							
The act of January 14, 1875 (18 Statutes, 296) authorizes the Secretary of the Treasury to use any surplus revenues from time to time in the Treasury not otherwise appropriated and to lease, sell, dispose of, at not less than par, in coin, either of the description of bonds of the United States described in the act of July 14, 1870 (16 Statutes, 272), to the extent necessary for the redemption of fractional currency in silver coins of the denominations of ten, twenty-five, and fifty cents of standard value.							

The act of March 3, 1879 (18 Statutes, 466), directs the Secretary of the Treasury to issue bonds of the character and description set out in the act of July 14, 1870 (16 Statutes, 272), to James B. Eads, or his legal representatives, in payment at par of the warrants of the Secretary of War for the construction of jetties and auxiliary works to maintain a wide and deep channel between the South Pass of the Mississippi River and the Gulf of Mexico, unless Congress shall have previously provided for the payment of the same by the necessary appropriation of money.	The act of July 14, 1870 (16 Statutes, 272), authorizes the issue of \$200,000,000 at 5 per centum, principal and interest payable in coin of the present standard value, at the pleasure of the United States Government, after ten years; these bonds to be exempt from the payment of all taxes or duties of the United States, as well as from taxation in any form by or under State, municipal, or local authority.	Bonds and coupons payable at the Treasury of the United States. This act not to authorize an increase of the bonded debt of the United States. Bonds to be sold at not less than par in coin, and the proceeds to be applied to the redemption of outstanding 5-20's or to be exchanged for said 5-20's, par for par. Payment of these bonds, when due, to be made in order of dates and numbers, beginning with each class last dated and numbered. Interest to cease at the end of three months from notice of intention to redeem. The act of January 20, 1871 (16 Statutes, 399), increases the amount of 5 per cent to \$500,000,000, provided the total amount of bonds issued shall not exceed the amount originally authorized, and authorizes the interest on any of these bonds to be paid quarterly.	The act of December 17, 1873 (18 Statutes, 1), authorized the issue of an equal amount of bonds of the loan of 1858, which the holders thereof may, on or before February 1, 1874, elect to exchange for the bonds of this loan.	10 years.....	May 1, 1881....	5 per cent....	Par.....	517,904,150.00	29,350.00
FOUR-AND-ONE-HALF PER-CENT LOAN OF 1891. (REFUNDING.)	The act of July 14, 1870 (16 Statutes, 272), authorizes the issue of \$500,000,000 at 4 per centum, payable in coin of the present standard value, at the pleasure of the United States Government, after fifteen years; these bonds to be exempt from the payment of all taxes or duties of the United States, as well as from taxation in any form by or under State, municipal, or local authority. Bonds and coupons payable at the Treasury of the United States. This act not to authorize an increase of the bonded debt of the United States. Bonds to be sold at not less than par in coin, and the proceeds to be applied to the redemption of outstanding 5-20's or to be exchanged for said 5-20's, par for par. Payment of these bonds, when due, to be made in order of dates and numbers, beginning with each class last dated and numbered. Interest to cease at the end of three months from notice of intention to redeem.	15 years.....	Sept. 1, 1891....	4 per cent....	Par.....	185,000,000.00	130,400.00	1,500,000,000	

a Including releases.

TABLE A.—STATEMENT OF THE OUTSTANDING PRINCIPAL OF THE PUBLIC DEBT, ETC.—Continued.

	Length of loan.	When redeemable.	Rate of interest.	Price at which sold.	Amount authorized.	Amount issued.	Amount outstanding.
FOUR-AND-ONE-HALF-PER-CENT LOAN OF 1891. (RESUMPTION.) The act of January 14, 1875 (18 Statutes, 296), authorizes the Secretary of the Treasury to use any surplus revenues from time to time in the Treasury not otherwise appropriated, and to issue, sell, dispose of, at not less than par in coin, either of the descriptions of bonds of the United States described in the act of July 14, 1870 (16 Statutes, 272), for the purpose of redeeming, on and after January 1, 1870, in coin, at the office of the assistant treasurer of the United States in New York, the outstanding United States legal-tender notes when presented in sums of not less than fifty dollars.	15 years.....	Sept. 1, 1891....	4½ per cent...	Par to 1¼ per ct. pre.	Indefinite.....	\$65,000,000.00	
	30 years.....	July 1, 1907....	4 per cent....	Par to 1 per ct. pre.		710,887,100.00	
FOUR-PER-CENT LOAN OF 1907. (REFUNDING.) The act of July 14, 1870 (16 Statutes, 272), authorizes the issue of \$1,000,000,000 at 4 per centum, payable in coin of the present standard value, at the pleasure of the United States Government, after thirty years; these bonds to be exempt from the payment of all taxes or duties of the United States, as well as from taxation in any form by or under State, municipal, or local authority. Bonds and coupons payable at the Treasury of the United States. This act not to authorize an increase of the bonded debt of the United States. Bonds to be sold at not less than par in coin, and the proceeds to be applied to the redemption of outstanding 6-20's, or to be exchanged for said 6-20's, par for par. Payment of these bonds, when due, to be made in order of dates and numbers, beginning with each class last dated and numbered. Interest to cease at the end of three months from notice of intention to redeem. See Refunding Certificates, page CXLV.	30 years.....	July 1, 1907....	4 per cent....	Par....	Indefinite.....		\$559,646,050.00
FOUR-PER-CENT LOAN OF 1907. (RESUMPTION.) The act of January 14, 1875 (18 Statutes, 296), authorizes the Secretary of the Treasury to use any surplus revenues from time to time in the Treasury not otherwise appropriated, and to issue, sell, dispose of, at not less than par, in coin, either of the description of bonds of the United States described in the act of July 14, 1870 (16 Statutes, 272), for the purpose of redeeming, on and after January 1, 1870, in coin, at the office of the assistant treasurer of the United States in New York, the outstanding United States legal-tender notes when presented in sums of not less than fifty dollars.	30 years.....	July 1, 1907....	4 per cent....	Par....	Indefinite.....	30,500,000.00	

CERTIFICATES OF DEPOSIT.

The act of June 8, 1872 (17 Statutes, 330), authorizes the deposit of United States notes without interest by banking associations in sums not less than \$10,000 and the issue of certificates therefor in denominations of not less than \$5,000; which certificates shall be payable on demand in United States notes, at the place where the deposits were made. It provides that the notes so deposited in the Treasury shall not be counted as a part of the legal reserve, but that the certificates issued therefor may be held and counted by the national banks as part of their legal reserve, and may be accepted in the settlement of clearing-house balances at the place where the deposits therefor were made, and that the United States notes for which such certificates were issued, or other United States notes of like amount, shall be held as special deposits in the Treasury, and used only for the redemption of such certificates.

GOLD CERTIFICATES.

The act of March 3, 1863 (12 Statutes, 711), authorizes the Secretary of the Treasury to receive deposits of gold coin and bullion in sums of not less than twenty dollars, and to issue certificates therefor in denominations of not less than twenty dollars each; the coin and bullion deposited for or representing the certificates to be retained in the Treasury for the payment of the same on demand. The certificates so issued to be received at par in payment of interest on the public debt and for duties on imports. The act of July 12, 1882 (22 Statutes, 165), provides that the Secretary of the Treasury shall suspend the issue of gold certificates whenever the amount of gold coin and gold bullion in the Treasury reserved for the redemption of United States notes falls below one hundred millions of dollars.

SILVER CERTIFICATES.

The act of February 28, 1878 (20 Statutes, 26, sec. 3), provides that any holder of the coin authorized by this act may deposit the same with the Treasurer or any assistant treasurer of the United States in sums not less than ten dollars and receive therefor certificates of not less than ten dollars each, corresponding with the denominations of the United States notes. The coin deposited for or representing the certificates shall be retained in the Treasury for the payment of the same on demand. Said certificates shall be receivable for customs, taxes, and all public dues, and, when so received, may be reissued. The act of August 4, 1886 (24 Statutes, 227), authorizes the issue of silver certificates in denominations of one, two, and five dollars; said certificates to be receivable, redeemable, and payable in like manner and for like purposes as is provided for by the act of February 28, 1878.

Indefinite...	On demand....	None	Par	No limit.....	64,780,000.00	26,605,000.00
Indefinite..	On demand....	None	Par...v..	Indefinite.....		37,420,149.00
Indefinite...	On demand....	None	Par	No limit.....		399,556,504.00

TABLE A.—STATEMENT OF THE OUTSTANDING PRINCIPAL OF THE PUBLIC DEBT, ETC.—Continued.

	Length of loan.	When redeemable.	Rate of interest.	Price at which sold.	Amount authorized.	Amount issued.	Amount outstanding.
REFUNDING CERTIFICATES.							
The act of February 26, 1879 (20 Statutes, 321), authorizes the Secretary of the Treasury to issue, in exchange for lawful money of the United States, certificates of deposit of the denomination of ten dollars, bearing interest at the rate of four per centum per annum, and convertible at any time, with accrued interest, into the four per centum bonds described in the refunding act; the money so received to be applied only to the payment of the bonds bearing interest at a rate not less than five per centum, in the mode prescribed by said act.	Indefinite....	Convertible in to 4 per cent bonds.	4 per cent....	Par.....	No limit.....	\$40,012,750.00	\$41,520.00
FUNDED LOAN OF 1891, CONTINUED AT THREE AND ONE-HALF PER CENT.							
These bonds were issued in exchange for five per cent bonds of the funded loan of 1891, by mutual agreement between the Secretary of the Treasury and the holders, and were made redeemable at the pleasure of the Government.	Indefinite....	At pleasure of the Govern-ment.	3½ per cent....	Par.....	.....	.....	1,150.00
FUNDED LOAN OF 1891, CONTINUED AT TWO PER CENT.							
These bonds were issued in exchange for the four and one-half per cent funded loan of 1891, by mutual agreement between the Secretary of the Treasury and the holders, and were made redeemable at the pleasure of the Government.	Indefinite....	At pleasure of the Govern-ment.	2 per cent....	Par.....	.....	25,364,500.00	25,364,500.00
LOAN OF JULY 12, 1892.							
These bonds were issued in exchange for the five and six per cent bonds which had been previously continued at three and one-half per cent by mutual agreement between the Secretary of the Treasury and the holders, and were made redeemable at the pleasure of the Government.	Indefinite....	At pleasure of the Govern-ment.	3 per cent....	Par.....	.....	.....	5,300.00
LOAN OF 1904.							
The act of January 14, 1875 (18 Statutes, 296), authorizes the Secretary of the Treasury to use any surplus revenues from time to time in the Treasury not otherwise appropriated, and to issue, sell, dispose of at not less than par, in coin, either of the descriptions of bonds of the United States described in the act of July 14, 1870 (16 Statutes, 272), for the purpose of redeeming, on and after January 1, 1879, in coin, at the office of the assistant treasurer of the United States in New York, the outstanding United States legal-tender notes when presented in sums of not less than fifty dollars.	10 years.....	Feb. 1, 1904....	5 per cent....	{117.223 {117.077	.....	100,000,000.00	100,000,000.00
LOAN OF 1925.							
The act of January 14, 1875 (18 Statutes, 296), authorizes the Secretary of the Treasury to use any surplus revenues, from time to time, in the Treasury not otherwise appropriated, and to issue, sell, dispose	30 years.....	Feb. 1, 1925....	4 per cent....	{104.4946 {111.166	.....	162,315,400.00	162,315,400.00

of at not less than par, in coin, either of the descriptions of bonds of the United States described in the act of July 14, 1870 (16 Statutes, 272), for the purpose of redeeming, on and after January 1, 1879, in coin, at the office of the assistant treasurer of the United States in New York, the outstanding United States legal-tender notes, when presented in sums of not less than fifty dollars.

TREASURY NOTES OF 1890.

The act of July 14, 1890 (26 Statutes, 289), directs the Secretary of the Treasury to purchase, from time to time, silver bullion to the aggregate amount of four million five hundred thousand ounces, or so much thereof as may be offered in each month, at the market price thereof, not exceeding one dollar for three hundred and seventy-one and twenty-five hundredths grains of pure silver, and to issue in payment for such purchases of silver bullion Treasury notes of the United States, to be prepared by the Secretary of the Treasury, in such form and of such denominations, not less than one dollar nor more than one thousand dollars, as he may prescribe. That said notes shall be redeemable on demand, in coin, at the Treasury of the United States, or at the office of any assistant treasurer of the United States, and when so redeemed may be reissued; but no greater or less amount of such notes shall be outstanding at any time than the cost of the silver bullion and the standard silver dollars coined therefrom then held in the Treasury, purchased by such notes, and such Treasury notes shall be a legal tender in payment of all debts, public and private, except where otherwise expressly stipulated in the contract, and shall be receivable for customs, taxes, and all public dues, and when so received may be reissued; and such notes, when held by any national banking association, may be counted as a part of its lawful reserve. That upon demand of the holder of any of the Treasury notes provided for, the Secretary of the Treasury shall redeem the same in gold or silver coin, at his discretion, it being the established policy of the United States to maintain the two metals on a parity with each other upon the present legal ratio, or such ratio as may be provided by law.

NATIONAL-BANK NOTES (REDEMPTION ACCOUNT).

The act of July 14, 1890 (26 Statutes, 289), provides that balances standing with the Treasurer of the United States to the respective credits of national banks for deposits made to redeem the circulating notes of such banks, and all deposits thereafter received for like purpose, shall be covered into the Treasury as a miscellaneous receipt, and the Treasurer of the United States shall redeem from the general cash in the Treasury the circulating notes of said banks which may come into his possession subject to redemption, * * * and the balance remaining of the deposits so covered shall, at the close of each month, be reported on the monthly public debt statement as debt of the United States bearing no interest.

Exclusive of \$14,133,660 bonds issued to Pacific railroads not yet redeemed.

of at not less than par, in coin, either of the descriptions of bonds of the United States described in the act of July 14, 1870 (16 Statutes, 372), for the purpose of redeeming, on and after January 1, 1879, in coin, at the office of the assistant treasurer of the United States in New York, the outstanding United States legal-tender notes, when presented in sums of not less than fifty dollars.	155,981,002.00	101,207,280.00	30,408,147.00	21,796,531,995.90
TREASURY NOTES OF 1890. The act of July 14, 1890 (26 Statutes, 289), directs the Secretary of the Treasury to purchase, from time to time, silver bullion to the aggregate amount of four million five hundred thousand ounces, or so much thereof as may be offered in each month, at the market price thereof, not exceeding one dollar for three hundred and seventy-one and twenty-five hundredths grains of pure silver, and to issue in payment for such purchases of silver bullion Treasury notes of the United States, to be prepared by the Secretary of the Treasury, in such form and of such denominations, not less than one dollar nor more than one thousand dollars, as he may prescribe. That said notes shall be redeemable on demand, in coin, at the Treasury of the United States, or at the office of any assistant treasurer of the United States, and when so redeemed may be released; but no greater mass of outstanding notes shall be outstanding at any one time than one million five hundred thousand dollars, and the standard silver bullion therefrom then held in the Treasury shall be such notes, and such Treasury notes shall be a legal tender in payment of all debts, public and private, except where otherwise expressly stipulated in the contract, and shall be receivable for customs, taxes, and all public dues, and when so received may be released; and such notes, when held by any national banking association, may be counted as a part of its lawful reserve. That upon demand of the holder of any of the Treasury notes provided for, the Secretary of the Treasury shall redeem the same in gold or silver coin, at his discretion, it being the established policy of the United States to maintain the two metals on a parity with each other upon the present legal ratio, or such ratio as may be provided by law. NATIONAL-BANK NOTES (REDEMPTION ACCOUNT). The act of July 14, 1890 (26 Statutes, 289), provides that balances standing with the Treasury of the United States to the credit of the credits of national banks for deposits made to redeem the circulating notes of such banks, and all deposits thereafter received for like purpose, shall be covered into the Treasury as a miscellaneous receipt, and the Treasurer of the United States shall redeem from the general cash in the Treasury the circulating notes of said banks which may come into his possession subject to redemption, * * * and the balance remaining of the deposits so covered shall, at the close of each month, be reported on the monthly public debt statement as debt of the United States bearing no interest.	155,981,002.00	101,207,280.00	30,408,147.00	21,796,531,995.90

Ab. 98—10

146 REPORT OF THE SECRETARY OF THE TREASURY.

TABLE B.—STATEMENT OF OUTSTANDING PRINCIPAL OF THE PUBLIC DEBT OF THE UNITED STATES ON THE 1ST OF JANUARY OF EACH YEAR FROM 1791 TO 1843, INCLUSIVE, AND ON THE 1ST OF JULY OF EACH YEAR FROM 1843 TO 1898, INCLUSIVE.

Year.	Amount.	Year.	Amount.
Jan. 1, 1791.	\$75,463,476.52	July 1, 1843.	\$32,742,922.00
1792.	77,227,924.66	1844.	23,481,652.50
1793.	80,358,634.04	1845.	15,928,303.01
1794.	78,427,404.77	1846.	15,550,202.97
1795.	80,747,587.39	1847.	38,826,534.77
1796.	83,762,172.07	1848.	47,044,862.23
1797.	82,064,479.33	1849.	63,061,858.69
1798.	79,228,529.12	1850.	63,452,773.55
1799.	78,408,069.77	1851.	68,304,796.02
1800.	82,976,294.35	1852.	66,199,241.71
1801.	83,038,050.80	1853.	59,808,117.70
1802.	80,712,632.25	1854.	42,242,222.42
1803.	77,054,686.40	1855.	35,586,956.56
1804.	86,427,120.88	1856.	31,932,537.90
1805.	82,312,150.50	1857.	28,699,531.85
1806.	75,723,270.66	1858.	44,911,881.03
1807.	69,218,898.64	1859.	58,496,837.89
1808.	65,196,317.97	1860.	64,842,287.68
1809.	57,023,192.09	1861.	90,580,873.72
1810.	53,173,217.52	1862.	524,176,412.13
1811.	48,005,587.76	1863.	1,119,772,138.63
1812.	45,209,737.90	1864.	1,815,784,270.57
1813.	55,962,827.67	1865.	2,680,647,809.74
1814.	81,487,846.24	1866.	2,772,236,173.66
1815.	99,833,690.15	1867.	2,678,126,105.87
1816.	127,334,933.74	1868.	2,611,687,851.19
1817.	123,491,965.16	1869.	2,588,452,213.94
1818.	103,466,633.83	1870.	2,480,672,427.81
1819.	95,529,648.28	1871.	2,353,211,532.32
1820.	91,015,666.15	1872.	2,253,261,628.78
1821.	89,987,427.66	1873.	a 2,234,482,993.20
1822.	93,546,676.98	1874.	a 2,251,690,498.43
1823.	90,875,877.28	1875.	a 2,232,284,531.95
1824.	90,269,777.77	1876.	a 2,180,395,067.15
1825.	83,788,432.71	1877.	a 2,205,301,892.10
1826.	81,054,059.99	1878.	a 2,256,205,892.53
1827.	73,987,357.20	1879.	a 2,349,667,482.04
1828.	67,475,043.87	1880.	a 2,120,415,370.63
1829.	58,421,413.67	1881.	a 2,069,013,569.58
1830.	48,565,406.50	1882.	a 1,918,312,994.03
1831.	39,123,191.68	1883.	a 1,884,171,723.07
1832.	24,822,235.18	1884.	a 1,830,528,923.57
1833.	7,001,698.83	1885.	b 1,876,424,275.14
1834.	4,760,082.08	1886.	b 1,754,445,205.78
1835.	33,733.05	1887.	b 1,688,229,591.63
1836.	37,513.05	1888.	b 1,705,992,530.58
1837.	336,957.83	1889.	b 1,640,673,340.23
1838.	3,308,124.07	1890.	b 1,585,821,048.73
1839.	10,434,221.14	1891.	b 1,560,472,784.61
1840.	3,573,343.82	1892.	b 1,628,840,151.63
1841.	5,250,875.54	1893.	b 1,598,111,156.13
1842.	13,594,490.73	1894.	b 1,668,787,127.68
1843.	20,201,226.27	1895.	b 1,701,033,661.25
		1896.	b 1,787,990,491.40
		1897.	b 1,832,074,708.90
		1898.	b 1,798,066,921.90

a In the amount here stated as the outstanding principal of the public debt are included the certificates of deposit outstanding on the 30th of June, issued under act of June 8, 1872, for which a like amount in United States notes was on special deposit in the Treasury for their redemption and added to the cash balance in the Treasury. These certificates, as a matter of accounts, are treated as a part of the public debt, but being offset by notes held on deposit for their redemption, should properly be deducted from the principal of the public debt in making comparison with former years.

b Exclusive of gold, silver, currency certificates, and Treasury notes of 1890 held in the Treasurer's cash, and including \$14,133,560 bonds issued to the several Pacific railroads not yet redeemed.

TABLE C.—ANALYSIS OF THE PRINCIPAL OF THE PUBLIC DEBT OF THE UNITED STATES FROM JULY 1, 1866, TO JULY 1, 1898.

Year.	5 per cents.	2½ per cents.	4 per cents.	4½ per cents.	5 per cents.	6 per cents.	7½ per cents.	Total interest-bearing debt.
1866—July 1					43,623,000.00	928,130,761.77		931,762,761.77
1867					3,480,000.00	24,971,968.93		28,460,968.93
1868					23,538,000.00	21,162,838.11		44,700,838.11
1869					37,137,800.00	21,162,938.11		58,300,738.11
1870					43,476,800.00	21,164,938.11		64,640,838.11
1871					33,023,200.00	57,338,672.95		90,360,872.95
1872	857,925,116.97				30,483,000.00	154,313,225.01	\$122,562,486.24	965,301,626.92
1873	105,625,885.90				30,483,000.00	431,444,812.83	139,974,435.34	707,531,624.47
1874	77,547,698.07				300,213,480.00	842,862,652.09	139,288,935.34	1,359,890,768.50
1875	90,498,980.74				245,769,420.63	1,231,495,166.90	671,610,367.02	2,221,311,918.29
1876	121,841,879.62				269,178,727.65	1,281,736,436.33	890,000,000.00	2,381,580,254.96
1877	17,737,025.68				201,862,666.01	1,196,546,041.02	813,460,621.95	2,382,581,207.60
1878	801,361.23				184,533,435.01	1,643,452,080.02	498,344,842.95	2,246,067,367.66
1879					221,568,185.01	1,878,303,984.50	37,367,196.95	2,202,068,727.66
1880					221,568,300.00	1,874,347,222.39		2,102,066,522.39
1881					274,236,450.00	1,765,317,422.39		2,046,453,722.39
1882					414,597,300.00	1,613,897,800.00		1,804,696,700.00
1883					414,597,300.00	1,374,868,800.00		1,814,794,100.00
1884					510,628,050.00	1,281,238,650.00		1,710,483,950.00
1885					607,132,750.00	1,213,624,700.00		1,738,980,750.00
1886					711,683,800.00	1,100,866,550.00		1,722,676,300.00
1887					703,266,650.00	994,999,650.00		1,710,665,450.00
1888					508,440,350.00	854,621,850.00		1,711,888,500.00
1889					484,864,300.00	738,619,000.00		1,794,736,650.00
1890					430,841,350.00	283,661,350.00		1,797,643,700.00
1891						196,378,600.00		1,723,993,100.00
1892								1,636,567,750.00
1893								1,468,810,400.00
1894								1,338,229,150.00
1895								1,226,563,850.00
1896								1,196,150,950.00
1897								1,146,014,100.00
1898								1,021,692,350.00
								960,522,500.00
								829,863,990.00
								725,313,110.00
								610,529,120.00
								566,029,330.00
								566,087,100.00
								635,041,890.00
								716,202,060.00
								847,363,890.00
								847,365,130.00
								847,367,470.00

a Continued at 2 per cent.

TABLE C.—ANALYSIS OF THE PRINCIPAL OF THE PUBLIC DEBT OF THE UNITED STATES, ETC.—Continued.

Year.	Debt on which interest has ceased.	Debt bearing no interest.	Outstanding principal.	Cash in the Treasury July 1.	Total debt less cash in Treasury.	Annual interest charge.
1866—July 1.	\$209,776.13	.....	\$81,973,537.90	\$21,006,654.59	\$10,965,953.01	\$1,869,445.70
1867.	238,872.92	.....	28,680,831.85	18,701,210.09	9,988,621.76	1,872,767.53
1868.	311,042.92	.....	44,911,881.03	7,011,689.31	37,900,191.72	2,446,870.28
1869.	308,099.77	.....	55,486,837.88	5,001,003.69	50,485,834.19	3,126,168.28
1870.	301,449.77	.....	64,842,287.88	4,877,885.87	59,964,402.01	3,443,887.28
1871.	199,999.77	.....	90,580,873.72	2,862,212.92	87,718,660.80	5,092,830.28
1872.	280,195.21	\$158,591,380.00	594,176,412.13	18,865,859.96	505,312,552.17	23,048,509.59
1873.	473,048.16	411,767,456.00	1,119,772,138.63	8,421,401.23	1,111,350,737.41	41,854,148.01
1874.	418,335.86	455,437,271.21	1,815,784,370.57	106,332,093.13	1,709,452,277.04	78,853,457.24
1875.	1,245,771.20	458,000,180.26	2,680,467,960.74	5,832,012.86	2,674,635,947.88	137,742,817.43
1876—August 31.	1,603,092.05	439,960,874.04	2,773,236,173.69	88,218,055.13	2,685,018,118.56	150,977,997.87
1877—July 1.	1,935,029.05	439,960,874.04	2,678,126,103.87	130,834,457.96	2,547,291,645.91	138,892,451.39
1878.	1,947,615.01	408,401,782.61	2,611,687,851.19	169,874,892.18	2,441,812,959.01	128,459,598.14
1879.	1,970,341.00	431,131,510.55	2,588,452,213.94	155,680,340.85	2,432,771,873.09	125,523,098.34
1880.	3,709,641.00	430,508,064.42	2,480,673,427.81	149,692,471.60	2,331,000,956.21	118,764,960.24
1881.	1,948,902.26	416,565,680.06	2,353,251,332.32	108,217,263.65	2,245,034,068.67	111,949,330.50
1882.	7,028,797.26	430,508,064.42	2,253,251,332.32	108,217,263.65	2,145,034,068.67	108,968,468.00
1883.	51,029,710.26	472,060,332.94	2,234,482,983.20	129,099,832.45	2,105,483,150.75	98,049,804.00
1884.	8,216,590.26	509,543,128.17	2,231,600,486.43	147,641,314.74	2,084,000,171.69	98,798,004.50
1885.	11,425,820.26	498,182,411.60	2,232,264,531.95	119,026,960.73	2,113,237,571.22	96,855,690.50
1886.	8,902,420.26	468,807,196.80	2,180,385,087.15	119,026,960.73	2,061,358,126.42	96,104,280.00
1887.	18,648,860.26	476,764,031.84	2,205,301,392.12	119,026,960.73	2,086,274,431.39	96,104,280.00
1888.	5,594,560.26	455,875,682.27	2,256,205,892.53	265,823,812.06	1,990,382,080.47	94,654,472.50
1889.	37,015,630.26	410,835,741.78	2,245,486,072.04	249,080,167.01	1,996,405,905.03	93,773,778.50
1890.	7,831,415.26	388,800,815.37	2,120,415,370.63	201,088,022.88	1,919,327,347.75	79,633,961.00
1891.	16,720,805.26	438,241,788.77	2,069,013,590.58	248,280,519.78	1,820,732,870.80	75,018,065.50
1892.	7,831,415.26	338,111,162.81	1,864,171,728.07	248,280,519.78	1,615,891,208.29	51,438,709.50
1893.	19,654,205.26	584,308,863.31	1,863,964,923.57	391,985,922.92	1,471,978,999.65	47,014,133.00
1894.	9,704,445.26	663,714,468.53	1,775,063,012.78	492,912,429.23	1,282,150,583.55	45,510,098.00
1895.	9,704,445.26	639,795,077.37	1,657,692,592.63	482,854,069.85	1,174,838,522.78	38,991,825.50
1896.	2,496,086.26	739,840,389.32	1,692,858,964.58	628,534,069.85	1,064,324,894.73	38,991,825.50
1897.	1,111,455.26	825,011,289.47	1,519,052,923.23	643,113,172.01	875,939,751.22	38,991,825.50
1898.	1,814,705.26	830,852,766.35	1,568,464,144.63	745,837,681.03	822,626,463.60	38,991,825.50
1899.	2,785,875.26	898,854,525.87	1,546,985,591.61	694,083,839.83	852,901,751.78	38,991,825.50
1900.	2,094,080.26	895,800,506.42	1,692,263,698.68	732,940,258.13	959,323,440.55	38,991,825.50
1901.	1,721,590.26	958,197,332.90	1,676,120,983.25	774,448,015.51	901,672,967.74	38,991,825.50
1902.	1,636,890.26	920,839,543.14	1,769,840,323.40	814,543,069.70	955,297,253.70	38,991,825.50
1903.	1,348,890.26	968,960,655.64	1,817,673,065.90	831,016,679.78	986,656,386.12	38,991,825.50
1904.	1,262,680.26	947,901,845.64	1,798,531,965.90	769,448,563.78	1,029,083,402.12	38,991,825.50

Notes 1.—Annual interest charge computed on amount of outstanding principal at close of fiscal year, and is exclusive of interest charge on Pacific railway bonds.

Notes 2.—The figures for July 1, 1877, were made up assuming pending funding operations to have been completed.

Notes 3.—The Treasury per cent on the 4 per cent bonds, as included in the 4 per cent bonds after thirty days, with the exception of the amount outstanding August 31, 1884, this being the date at which the public debt reached its lowest point. The Treasury per cent on the 4 per cent bonds, and was redeemable on the day before after thirty days, but being constantly changing, it has been considered more equitable to include the whole amount outstanding at bearing 4 per cent interest on an average for the year.

REPORT OF THE SECRETARY OF THE TREASURY. 149

TABLE D.—STATEMENT OF THE ISSUE AND REDEMPTION OF LOANS AND TREASURY NOTES (BY WARRANTS) FOR THE FISCAL YEAR ENDED JUNE 30, 1898.

	Issues.	Redemptions.	Excess of issues.	Excess of redemptions.
Two-year notes of 1863, act of Mar. 3, 1863.....		\$50. 00		\$50. 00
Old demand notes, acts of July 17, 1861, Aug. 5, 1864, and Feb. 12, 1862.		350. 00		350. 00
Five-twentieths of 1864, act of June 30, 1864.....		500. 00		500. 00
Five-twentieths of 1862, act of Feb. 25, 1862.....		250. 00		250. 00
Loan of July and Aug., 1861, acts of July 17 and Aug. 5, 1861.....		11, 000. 00		11, 000. 00
Legal-tender notes, acts of Feb. 25 and July 11, 1862, Jan. 7 and Mar. 3, 1863.....	\$54, 260, 000. 00	54, 260, 000. 00		
Gold certificates, acts of Mar. 3, 1863, and July 12, 1863.....		1, 862, 020. 00		1, 862, 020. 00
One-year notes of 1863, act of Mar. 3, 1863.....		140. 00		140. 00
Compound-interest notes, acts of Mar. 3, 1863, and June 30, 1864.....		760. 00		760. 00
Ten-forties of 1864, act of Mar. 3, 1864.....		14, 300. 00		14, 300. 00
Seven-thirties of 1861, act of July 17, 1861.....		250. 00		250. 00
Seven-thirties of 1864 and 1865, acts of June 30, 1864, and Mar. 3, 1865.....		400. 00		400. 00
Consols of 1865, act of Mar. 3, 1865.....		20, 200. 00		20, 200. 00
Consols of 1867, act of Mar. 3, 1865.....		12, 150. 00		12, 150. 00
Funded loan of 1881, acts of July 14, 1870, Jan. 20, 1871, and Jan. 14, 1875.....		2, 750. 00		2, 750. 00
Certificates of deposit, act of June 8, 1873.....	53, 675, 000. 00	88, 820, 000. 00		35, 145, 000. 00
Silver certificates, act of Feb. 28, 1878.....	173, 620, 000. 00	150, 543, 000. 00	\$23, 077, 000. 00	
Refunding certificates, act of Feb. 26, 1879.....		3, 610. 00		3, 610. 00
Loan of 1882, act of July 12, 1882.....		100. 00		100. 00
Fractional currency, acts of July 17, 1862, Mar. 3, 1863, and June 30, 1864.....		2, 950. 00		2, 950. 00
Funded loan of 1891, acts July 14, 1870, Jan. 21, 1871, and Jan. 14, 1875.....		21, 350. 00		21, 350. 00
Funded loan of 1907, acts July 14, 1870, Jan. 20, 1871, and Jan. 14, 1875.....	5, 950. 00		5, 950. 00	
Treasury notes of 1890, act of July 14, 1890.....	29, 642, 000. 00	43, 302, 000. 00		13, 660, 000. 00
Redemption of national-bank notes, act July 14, 1890.....	22, 024, 970. 00	15, 990, 460. 00	6, 034, 510. 00	
Bonds issued to Pacific railroads, acts July 1, 1862, and July 2, 1864.....		29, 850, 952. 00		29, 850, 952. 00
Total.....	333, 227, 920. 00	384, 219, 542. 00	29, 117, 460. 00	80, 109, 082. 00
Excess of redemptions.....				80, 109, 082. 00
Excess of issues.....				29, 117, 460. 00
Net excess of redemptions charged to receipts and expenditures.....				50, 991, 622. 00

TABLE E.—STATEMENT SHOWING THE PURCHASE AND REDEMPTION OF BONDS ON ACCOUNT OF THE SINKING FUND DURING EACH FISCAL YEAR FROM ITS INSTITUTION IN MAY, 1869, TO AND INCLUDING JUNE 30, 1898.

Year ended—	Principal re- deemed.	Premium paid.	Net cost in currency.	Net cost estimated in gold.	Interest due at close of fis- cal year.	Accrued interest paid in coin.	Balance of interest due at close of fiscal year.
JUNE 30, 1869.							
Five-twentieths of 1862.....	\$1,621,000.00	\$253,822.54	\$1,874,822.54	\$1,849,970.02	\$16,210.00	\$7,884.80	\$3,825.40
Five-twentieths of March, 1864.....	70,000.00	11,728.00	81,728.00	87,562.82	700.00	218.63	481.37
Five-twentieths of June, 1864.....	1,081,000.00	161,946.45	1,242,946.45	873,205.61	10,500.00	1,470.42	9,039.59
Five-twentieths of 1865.....	4,465,000.00	74,969.00	4,539,969.00	387,566.28	4,650.00	2,683.54	1,966.46
Consols, 1865.....	481,000.00	73,736.80	554,736.80	387,903.26	13,830.00	429.04	13,400.96
Consols, 1867.....	4,718,000.00	749,208.08	5,467,208.08	3,948,586.11	141,540.00	116,032.35	25,507.65
Consols, 1868.....	3,305,000.00	48,442.50	3,354,442.50	256,653.20	9,150.00	8,173.96	25,976.02
Total.....	8,691,000.00	1,374,850.87	10,065,850.87	7,261,457.30	196,590.00	136,392.56	60,197.44
JUNE 30, 1870.							
Five-twentieths of 1862.....	3,542,050.00	493,479.43	4,035,529.43	3,263,090.51	100,919.50	45,994.49	114,925.01
Five-twentieths of March, 1864.....	85,000.00	15,742.87	100,742.87	76,658.54	5,350.00	1,080.99	4,269.01
Five-twentieths of June, 1864.....	3,971,400.00	506,186.91	4,477,586.91	3,647,628.29	105,834.00	49,946.00	115,898.00
Five-twentieths of 1865.....	2,790,250.00	391,735.43	3,181,985.43	2,606,636.20	105,257.50	37,113.53	68,143.97
Consols, 1865.....	11,532,150.00	1,454,778.37	12,986,928.37	10,060,736.97	495,431.50	145,518.29	349,903.21
Consols, 1867.....	5,892,550.00	861,763.73	6,754,313.73	5,309,890.90	302,734.50	66,111.51	296,622.99
Consols, 1868.....	348,500.00	53,363.95	4,01,863.95	3,308,573.16	19,380.00	5,238.73	14,141.27
Total.....	28,151,900.00	3,747,053.68	31,898,953.68	26,893,143.57	1,254,897.00	351,003.54	903,893.46
JUNE 30, 1871.							
Five-twentieths of 1862.....	2,792,950.00	227,607.56	3,020,557.56	2,690,209.05	145,975.00	36,657.80	109,317.20
Five-twentieths of March, 1864.....	30,500.00	2,277.20	32,777.20	28,590.88	1,240.00	388.35	851.65
Five-twentieths of June, 1864.....	3,967,350.00	340,508.63	4,307,858.63	3,847,162.45	201,375.00	51,703.46	149,671.54
Five-twentieths of 1865.....	6,798,600.00	774,923.00	7,573,523.00	6,525,231.43	331,933.50	92,256.58	239,673.92
Consols, 1865.....	10,222,200.00	850,946.79	11,073,146.79	9,762,367.78	532,117.00	106,455.28	412,661.72
Consols, 1867.....	6,103,050.00	541,558.41	6,644,608.41	5,800,618.37	381,528.00	76,745.93	274,782.07
Consols, 1868.....	52,600.00	4,784.61	57,384.61	49,797.81	3,096.00	572.13	2,512.87
Total.....	29,936,250.00	2,542,631.20	32,478,881.20	28,694,017.73	1,557,294.50	397,782.53	1,196,481.97
JUNE 30, 1872.							
Five-twentieths of 1862.....	6,417,850.00	704,055.21	7,121,905.21	6,345,391.98	427,849.00	76,179.43	353,669.57
Five-twentieths of March, 1864.....	127,100.00	14,960.03	142,060.03	136,123.46	8,884.00	1,338.70	7,555.30
Five-twentieths of June, 1864.....	3,604,650.00	438,656.16	4,043,306.16	3,573,223.63	246,001.50	57,449.80	186,551.70
Five-twentieths of 1865.....	3,636,200.00	496,838.70	4,133,038.70	3,594,747.85	246,562.00	87,817.37	268,744.63

JUNE 30, 1873.									
Consols, 1865	11,733,000.00	1,458,939.45	12,225,839.45	11,000,735.99	707,334.00	140,245.21	558,065.79		
Consols, 1867	6,850,000.00	833,000.15	7,725,500.15	6,863,777.86	417,524.00	108,457.52	806,944.08		
Consols, 1868	85,850.00	9,931.63	7,96,801.63	6,505.02	5,151.00	1,886.86	5,164.06		
Total	32,618,450.00	3,095,050.34	36,553,500.34	32,248,645.22	3,059,825.50	430,908.58	1,628,417.12		
JUNE 30, 1874.									
Five-twentieths of 1862	7,137,100.00	925,733.87	8,062,833.87	7,089,542.58	431,450.50	101,990.57	390,439.93		
Five-twentieths of March, 1864	50,000.00	7,872.50	57,872.50	49,780.91	8,500.00	813.70	2,686.30		
Five-twentieths of June, 1864	8,741,150.00	480,634.87	4,221,834.27	8,715,211.22	223,270.50	42,216.46	181,054.04		
Five-twentieths of 1865	1,969,550.00	250,635.93	2,310,485.93	1,943,458.58	120,266.50	23,744.47	96,522.03		
Consols, 1865	10,793,250.00	1,371,137.17	12,139,437.17	10,668,617.08	615,095.00	145,065.84	501,023.66		
Consols, 1867	4,402,100.00	553,610.89	4,935,710.89	4,373,781.76	264,128.00	60,632.51	134,493.49		
Consols, 1868	619,550.00	81,983.44	701,533.44	617,140.34	37,173.00	8,948.40	28,224.60		
Total	28,678,000.00	3,671,268.17	32,349,268.17	28,457,562.83	1,726,881.50	392,886.45	1,333,496.05		
JUNE 30, 1875.									
Five-twentieths of 1862	1,421,700.00	161,219.79	1,582,919.79	1,415,391.05	99,519.00	31,743.95	67,775.05		
Five-twentieths of June, 1864	2,020,550.00	218,457.39	2,239,007.39	2,012,051.82	141,438.50	48,013.46	93,425.04		
Five-twentieths of 1865	1,247,250.00	135,577.95	1,382,827.95	1,241,871.68	97,307.50	29,348.19	57,969.31		
Consols, 1865	3,363,650.00	360,964.62	3,754,614.62	3,374,934.42	203,619.00	48,489.33	137,139.67		
Consols, 1867	4,061,000.00	452,348.13	4,483,248.13	4,039,875.86	243,090.00	55,976.97	187,083.03		
Consols, 1868	802,300.00	86,505.63	888,805.63	798,926.40	43,138.00	11,014.38	37,123.62		
Total	12,936,450.00	1,395,073.55	14,331,523.55	12,872,850.74	823,082.00	222,586.28	600,495.72		
JUNE 30, 1876.									
Five-twentieths of 1862	25,170,400.00			25,170,400.00	541,973.50	353,081.56	188,911.94		
JUNE 30, 1877.									
Five-twentieths of 1862	5,735,200.00			5,735,200.00	404,964.72	54,745.72	350,218.28		
Five-twentieths of June, 1864	1,969,600.00			10,989,600.00	700,873.00	171,866.83	538,905.67		
Five-twentieths of 1865	1,793,250.00			1,793,250.00	125,247.50	30,805.86	94,441.64		
Total	18,444,050.00			18,444,050.00	1,291,085.50	257,517.91	1,033,565.59		
JUNE 30, 1877.									
Five-twentieths of 1862	81,200.00			81,200.00	4,352.25	1,181.67	3,170.58		
Five-twentieths of June, 1864	173,900.00			173,900.00	9,943.50	1,323.60	8,619.90		
Five-twentieths of 1865	180,350.00			180,350.00	9,619.00	8,141.08	6,377.92		
Consols, 1865	6,050.00			6,050.00	181.50	108.97	73.53		
Consols, 1867	1,000.00			1,000.00	30.00	21.20	8.80		
Total	447,500.00			447,500.00	24,026.25	5,776.52	18,249.73		

TABLE E.—STATEMENT SHOWING THE PURCHASE AND REDEMPTION OF BONDS ON ACCOUNT OF THE SINKING FUND, ETC.—Continued.

Year ended—	Principal re- deemed.	Premium paid.	Net cost in currency.	Net cost estimated in gold.	Interest due at close of fis- cal year.	Accrued interest paid in coin.	Balance of interest due at close of fiscal year.
JUNE 30, 1878.							
Five-twentieths of 1862.....	\$17,900.00	.....	.....	\$17,900.00	\$988.00	\$192.65	\$772.35
Five-twentieths of June, 1864.....	15,900.00	.....	.....	15,900.00	834.00	78.41	755.59
Five-twentieths of 1865.....	2,300.00	.....	.....	2,300.00	128.00	40.32	48.68
Consols, 1865.....	22,000.00	.....	.....	22,000.00	1,416.00	273.25	1,472.95
Consols, 1867.....	6,700.00	.....	.....	6,700.00	242.00	184.76	297.24
Consols, 1868.....	8,500.00	.....	.....	8,500.00	510.00	89.86	420.17
Total.....	73,800.00	.....	.....	73,800.00	4,197.00	809.92	3,387.08
JUNE 30, 1879.							
Five-twentieths of 1862.....	2,650.00	.....	.....	2,650.00	165.75	40.35	125.40
Five-twentieths of June, 1864.....	2,150.00	.....	.....	2,150.00	94.50	18.58	75.97
Five-twentieths of 1865.....	1,850.00	.....	.....	1,850.00	85.50	41.22	44.28
Consols, 1865.....	1,700.00	.....	.....	1,700.00	102.00	41.49	60.51
Consols, 1867.....	9,050.00	.....	.....	9,050.00	542.00	166.62	375.38
Consols, 1868.....	100.00	.....	.....	100.00	6.00	.56	5.44
Total.....	18,500.00	.....	.....	18,500.00	996.75	308.77	687.98
JUNE 30, 1880.							
Five-twentieths of 1862.....	100.00	.....	.....	100.00	4.00	.97	2.03
Five-twentieths of June, 1864.....	100.00	.....	.....	100.00	4.00	.49	2.51
Five-twentieths of 1865.....	250.00	.....	.....	250.00	14.50	5.85	2.65
Ten-forties of 1864.....	676,050.00	.....	.....	676,050.00	28,166.75	12,872.66	15,294.10
Loan of February, 1861.....	2,911,181.95	\$74,161.95	.....	2,911,181.95	86,110.00	47,940.20	37,649.80
Loan of July and August, 1861.....	33,440,823.04	1,876,088.04	.....	33,440,823.04	1,166,897.56	518,143.79	647,663.61
Loan of March, 1863.....	18,346,185.18	649,035.18	.....	18,346,185.18	484,747.50	213,178.29	271,668.21
Oregon war debt.....	202,550.00	8,373.02	.....	210,823.02	9,787.50	3,602.56	6,184.94
Funded loan of 1881.....	22,576,450.00	662,206.97	.....	24,237,656.97	415,162.70	180,946.86	384,813.84
Funded loan of 1897.....	1,500,000.00	125,558.26	.....	1,625,558.26	15,000.00	10,191.74	4,808.26
Total.....	73,652,900.00	2,766,320.42	.....	76,418,220.42	2,203,806.45	936,951.60	1,267,854.85
JUNE 30, 1881.							
Five-twentieths of 1862.....	3,000.00	.....	.....	3,000.00	210.00	80.22	129.78
Five-twentieths of June, 1864.....	50.00	.....	.....	50.00	2.50	.25	2.25
Five-twentieths of 1865.....	100.00	.....	.....	100.00	7.00	1.74	5.26
Loan of February, 1861.....	7,775,000.00	51,277.49	.....	7,826,277.49	462,860.00	160,072.48	802,817.12

Loan of July and August, 1881.....	16,712,450.00	484,876.11	17,201,326.11	1,028,747.00	200,043.95	892,703.03
Loan of March, 1883.....	7,064,350.00	189,403.66	7,253,753.66	361,815.50	68,330.51	277,884.89
Oregon war debt.....	43,768,400.00	326,171.23	44,094,571.23	55,668.65	88,551.11	3,033.89
Funded loan of 1881.....				1,106,474.15	263,343.64	843,130.21
Total.....	74,871,350.00	1,061,248.78	75,432,598.78	2,985,731.65	707,423.60	2,228,808.05
JUNE 30, 1882.						
Loan of July and August, 1881, continued at 2½ per cent.....	53,215,850.00		53,215,850.00	1,368,894.64	579,493.12	789,401.50
Loan of March, 1883, continued at 2½ per cent.....	2,687,850.00		2,687,850.00	91,701.75	23,771.80	65,929.95
Funded loan of 1881, continued at 2½ per cent.....	1,000.00		1,000.00	28.33	2.78	20.55
Funded loan of 1881.....	2,224,450.00		2,224,450.00	115,717.53	6,771.83	108,945.70
Total.....	60,079,150.00		60,079,150.00	1,576,337.23	612,089.53	964,297.70
JUNE 30, 1883.						
Five-twentyes of 1882.....	100.00		100.00	5.50	14.18	8.68
Funded loan of 1881.....	41,300.00		41,300.00	1,716.66	138.13	578.53
Loan of July and August, 1881, continued at 2½ per cent.....	661,750.00		661,750.00	20,760.25	5,293.40	15,466.85
Loan of March, 1883, continued at 2½ per cent.....	34,128,150.00		34,128,150.00	1,171,084.37	186,913.66	984,120.71
Funded loan of 1881, continued at 2½ per cent.....	10,019,400.00		10,019,400.00	233,862.12	137,402.11	96,460.01
Total.....	44,850,700.00		44,850,700.00	1,427,378.90	329,761.45	1,097,617.43
JUNE 30, 1884.						
Five-twentyes of 1882.....	200.00		200.00	9.50	13.35	3.85
Funded loan of 1881.....	5,200.00		5,200.00	187.08	164.24	22.84
Loan of March, 1883, continued at 2½ per cent.....	422,550.00		422,550.00	14,789.26	2,823.94	11,965.31
Loan of July and August, 1881, continued at 2½ per cent.....	596,250.00		596,250.00	19,818.75	7,699.86	12,748.89
Funded loan of 1881, continued at 2½ per cent.....	33,231,450.00		33,231,450.00	1,018,176.97	276,923.83	741,253.04
Loan of July 12, 1882.....	12,553,950.00		12,553,950.00	240,130.13	31,884.61	208,245.53
Total.....	45,798,600.00		45,798,600.00	1,283,111.68	318,879.93	974,231.75
JUNE 30, 1885.						
Five-twentyes of 1882.....	4,000.00		4,000.00	85.00	701.96	616.96
Five-twentyes of 1884.....	100.00		100.00	4.00	3.51	3.51
Funded loan of 1881.....	1,100.00		1,100.00	35.67	50.51	13.84
Loan of July and August, 1881, continued at 2½ per cent.....	52,250.00		52,250.00	1,260.62	568.85	680.77
Loan of March, 1883, continued at 2½ per cent.....	18,000.00		18,000.00	499.62	87.98	411.70
Funded loan of 1881, continued at 2½ per cent.....	230,500.00		230,500.00	5,347.70	1,416.28	3,931.42
Loan of July 12, 1883.....	45,282,200.00		45,282,200.00	1,153,480.88	266,821.31	884,639.57
Total.....	45,588,150.00		45,588,150.00	1,160,703.49	271,667.32	889,036.17

TABLE E.—STATEMENT SHOWING THE PURCHASE AND REDEMPTION OF BONDS ON ACCOUNT OF THE SINKING FUND, ETC.—Continued.

Year ended—	Principal re- deemed.	Premium paid.	Net cost in currency.	Net cost estimated in gold.	Interest due at close of fi- scal year.	Accrued interest paid in coin.	Balance of interest due at close of fiscal year.
JUNE 30, 1878.							
Five-twentieths of 1862.....	\$17,900.00	.....	.....	\$17,900.00	\$968.00	\$192.65	\$778.35
Five-twentieths of June, 1864.....	18,900.00	.....	.....	18,900.00	834.41	78.41	755.99
Five-twentieths of 1865.....	2,350.00	.....	.....	2,350.00	129.00	40.92	88.08
Consols, 1865.....	23,000.00	.....	.....	23,000.00	1,416.00	272.35	1,142.65
Consols, 1867.....	5,700.00	.....	.....	5,700.00	342.00	184.76	207.24
Consols, 1868.....	8,500.00	.....	.....	8,500.00	510.00	89.83	420.17
Total.....	73,950.00	.....	.....	73,950.00	4,197.00	809.92	3,387.08
JUNE 30, 1879.							
Five-twentieths of 1862.....	2,650.00	.....	.....	2,650.00	165.75	40.35	125.40
Five-twentieths of June, 1864.....	3,150.00	.....	.....	3,150.00	94.50	18.53	75.97
Five-twentieths of 1865.....	1,850.00	.....	.....	1,850.00	85.50	41.23	44.28
Consols, 1865.....	1,700.00	.....	.....	1,700.00	102.00	41.49	60.51
Consols, 1867.....	9,050.00	.....	.....	9,050.00	543.00	166.62	376.38
Consols, 1868.....	100.00	.....	.....	100.00	6.00	1.56	4.44
Total.....	18,500.00	.....	.....	18,500.00	993.75	308.77	687.98
JUNE 30, 1880.							
Five-twentieths of 1862.....	100.00	.....	.....	100.00	4.00	.67	3.33
Five-twentieths of June, 1864.....	100.00	.....	.....	100.00	4.00	.49	3.51
Five-twentieths of 1865.....	250.00	.....	.....	250.00	14.50	5.85	8.65
Ten-forties of 1864.....	676,050.00	.....	.....	676,050.00	28,168.75	12,872.65	15,296.10
Loan of February, 1861.....	2,837,000.00	.....	.....	2,911,161.95	85,110.90	47,540.20	87,569.80
Loan of July and August, 1861.....	32,064,250.00	.....	.....	33,440,385.04	1,165,807.50	618,148.79	647,656.61
Loan of March, 1863.....	13,797,150.00	.....	.....	13,846,185.18	484,747.50	213,179.29	271,568.21
Oregon war debt.....	202,550.00	.....	.....	210,823.02	9,787.50	3,802.56	6,124.94
Funded loan of 1861.....	22,575,450.00	.....	.....	24,237,654.97	415,162.70	180,849.96	284,013.34
Funded loan of 1867.....	1,500,000.00	.....	.....	1,625,553.26	15,000.00	10,191.74	4,808.26
Total.....	73,652,900.00	2,795,320.43	.....	76,448,220.42	2,203,806.45	935,951.90	1,267,854.85
JUNE 30, 1881.							
Five-twentieths of 1862.....	3,000.00	.....	.....	3,000.00	210.00	80.23	129.78
Five-twentieths of June, 1864.....	50.00	.....	.....	50.00	3.50	.35	3.25
Five-twentieths of 1865.....	100.00	.....	.....	100.00	7.00	1.74	5.26
Loan of February, 1861.....	7,775,000.00	51,277.53	.....	7,826,277.53	462,390.00	160,072.88	802,317.13

Loan of July and August, 1891.....	16,712,450.00	488,876.11	17,201,326.11	1,008,747.00	200,048.95	802,708.05
Loan of March, 1893.....	7,057,350.00	198,511.62	7,255,861.62	861,815.50	63,330.51	277,984.99
Oregon war debt.....	43,768,400.00	326,171.83	44,094,571.83	55,088.65	63,551.11	3,033.89
Funded loan of 1881.....				1,106,474.15	268,842.94	843,130.21
Total.....	74,871,850.00	1,061,248.79	75,432,598.78	2,985,731.65	707,428.00	2,228,808.05
JUNE 30, 1892.						
Loan of July and August, 1891, continued at $\frac{3}{4}$ per cent.....	55,215,850.00		55,215,850.00	1,868,894.64	579,488.13	790,401.50
Loan of March, 1893, continued at $\frac{3}{4}$ per cent.....	2,637,850.00		2,637,850.00	91,701.75	23,771.80	65,929.95
Funded loan of 1891, continued at $\frac{3}{4}$ per cent.....	1,000.00		1,000.00	28.83	2.78	20.55
Funded loan of 1891.....	2,224,450.00		2,224,450.00	115,717.53	6,771.83	108,945.70
Total.....	60,079,150.00		60,079,150.00	1,976,337.23	612,039.53	964,297.70
JUNE 30, 1893.						
Five-twentieths of 1892.....	100.00		100.00	5.50	14.13	8.68
Funded loan of 1891.....	41,300.00		41,300.00	1,715.66	138.13	578.53
Loan of July and August, 1891, continued at $\frac{3}{4}$ per cent.....	661,750.00		661,750.00	20,780.25	5,293.40	15,486.85
Loan of March, 1893, continued at $\frac{3}{4}$ per cent.....	84,128,150.00		84,128,150.00	1,171,084.37	186,913.66	984,120.71
Funded loan of 1891, continued at $\frac{3}{4}$ per cent.....	10,019,400.00		10,019,400.00	283,862.12	137,402.11	96,460.01
Total.....	44,850,700.00		44,850,700.00	1,427,378.90	329,761.43	1,097,617.42
JUNE 30, 1894.						
Five-twentieths of 1892.....	200.00		200.00	9.50	13.25	3.85
Funded loan of 1891.....	5,200.00		5,200.00	187.08	164.24	23.84
Loan of March, 1893, continued at $\frac{3}{4}$ per cent.....	422,550.00		422,550.00	14,789.25	2,823.04	11,965.31
Loan of July and August, 1891, continued at $\frac{3}{4}$ per cent.....	546,250.00		546,250.00	19,818.75	7,660.98	12,748.89
Funded loan of 1891, continued at $\frac{3}{4}$ per cent.....	33,221,450.00		33,221,450.00	1,018,176.97	276,928.93	741,253.04
Loan of July 12, 1892.....	12,553,860.00		12,553,860.00	240,180.13	31,884.61	268,245.52
Total.....	46,789,600.00		46,789,600.00	1,283,111.68	318,879.93	974,231.75
JUNE 30, 1895.						
Five-twentieths of 1892.....	4,000.00		4,000.00	85.00	701.96	616.96
Funded loan of 1891.....	1,100.00		1,100.00	4.00	3.51	3.51
Loan of July and August, 1891, continued at $\frac{3}{4}$ per cent.....	51,250.00		51,250.00	95.67	50.51	13.84
Loan of March, 1893, continued at $\frac{3}{4}$ per cent.....	18,000.00		18,000.00	1,269.62	589.56	680.77
Funded loan of 1891, continued at $\frac{3}{4}$ per cent.....	230,500.00		230,500.00	499.63	411.70	411.70
Loan of July 12, 1892.....	45,282,200.00		45,282,200.00	5,847.70	1,416.28	8,931.42
Total.....	45,588,150.00		45,588,150.00	1,163,460.83	268,821.51	864,639.57
Total.....	45,588,150.00		45,588,150.00	1,160,703.49	271,667.32	889,086.17

TABLE E.—STATEMENT SHOWING THE PURCHASE AND REDEMPTION OF BONDS ON ACCOUNT OF THE SINKING FUND, ETC.—Continued.

Year ended—	Principal re- deemed.	Premium paid.	Net cost in currency.	Net cost estimated in gold.	Interest due at close of fi- scal year.	Accrued interest paid in coin.	Balance of interest due at close of fiscal year.
JUNE 30, 1886.							
Oregon war debt.....	\$100.00			\$100.00	\$1.50	\$13.00	\$16.50
Loan of July and August 1861.....	2,500.00			2,500.00	53.25	99.00	45.75
Loan of 1863.....	1,100.00			1,100.00	31.50	33.00	1.50
Five-twentieths of 1862.....	67,500.00			67,500.00	1,425.00	14,399.00	12,974.00
Five-twentieths of 1864.....	4,300.00			4,300.00	85.25	31.14	54.11
Five-twentieths of 1865.....	300.00			300.00	6.00	2.02	3.98
Ten-forties of 1864.....	14,250.00			14,250.00	356.25	278.80	77.45
Consols of 1866.....	15,900.00			15,900.00	419.25	842.29	423.04
Consols of 1867.....	28,950.00			28,950.00	662.25	2,070.75	1,408.50
Consols of 1868.....	12,250.00			12,250.00	203.25	570.04	366.79
Consols of 1869.....	49,800.00			49,800.00	826.50	868.55	42.05
Funded loan of 1881.....	44,044,800.00			44,044,800.00	435,942.00	220,617.44	215,324.57
Loan of 1882.....	4,100.00			4,100.00	123.00	31.32	91.68
Loan of 1883, continued at 34 per cent.....	98,750.00			98,750.00	2,848.50	1,560.76	1,287.74
Loan of July and August, 1861, continued at 34 per cent.....	190,750.00			190,750.00	4,704.13	1,065.34	3,638.79
Funded loan of 1881, continued at 34 per cent.....							
Total.....	44,531,350.00			44,531,350.00	447,687.64	242,457.45	205,200.19
JUNE 30, 1887.							
Loan of 1882.....	47,748,750.00			47,748,750.00	1,375,653.00	223,676.33	1,151,976.62
Ten-forties of 1864.....	1,300.00			1,300.00	54.17	119.50	35.33
Funded loan of 1881.....	3,100.00			3,100.00	110.83	168.80	55.97
Loan of July and August, 1861.....	28,700.00			28,700.00	1,722.00	861.00	861.00
Five-twentieths of 1862.....	650.00			650.00	45.50	58.12	12.62
Five-twentieths of 1865.....	8,000.00			8,000.00	560.00	473.92	86.08
Loan of February, 1861.....	2,000.00			2,000.00	120.00	30.00	60.00
Loan of 1863.....	13,400.00			13,400.00	804.00	402.00	402.00
Consols of 1865.....	18,200.00			18,200.00	1,092.00	2,147.16	1,055.16
Consols of 1867.....	34,000.00			34,000.00	2,040.00	3,333.69	1,283.69
Consols of 1868.....	5,500.00			5,500.00	30.00	270.25	240.25
Consols of 1869.....	1,500.00			1,500.00	52.50	22.58	29.92
Loan of July and August, 1861, continued at 34 per cent.....	8,500.00			8,500.00	287.50	60.31	237.19
Loan of 1863, continued at 34 per cent.....	25,600.00			25,600.00	926.33	213.17	713.16
Funded loan of 1881, continued at 34 per cent.....							
Total.....	47,894,200.00			47,894,200.00	1,383,537.83	231,694.88	1,151,672.95
JUNE 30, 1888.							
Loan of 1882.....	18,880,500.00			18,880,500.00	680,680.00	94,660.98	565,998.12
Funded loan of 1891.....	19,455,400.00	\$1,555,960.17		21,011,360.17	794,247.00	90,098.48	699,148.57

Funded loan of 1867.....	5,389,250.00	1,294,048.71	6,685,298.71	293,283.00	43,817.79	159,475.21
Total.....	43,725,150.00	2,852,015.88	46,577,165.88	1,638,170.00	233,577.10	1,424,592.00
JUNE 30, 1889.						
Oregon war debt.....	1,150.00	.....	1,150.00	89.00	39.00	30.00
Loan of July and August, 1861.....	500.00	.....	500.00	30.00	15.00	15.00
Loan of 1862.....	57,900.00	.....	57,900.00	1,709.25	354.94	1,854.31
Loan of July and August, 1861, continued at 3½ per cent.....	3,000.00	.....	3,000.00	105.00	20.42	84.58
Loan of 1863, continued at 3½ per cent.....	100.00	.....	100.00	3.50	.91	2.59
Funded loan of 1861.....	12,153,850.00	844,918.01	12,998,768.01	480,076.12	89,397.68	440,678.44
Funded loan of 1867.....	26,839,650.00	7,672,222.29	34,511,872.29	1,011,368.00	180,452.80	890,915.31
Total.....	39,066,150.00	8,517,140.30	47,573,290.30	1,493,380.87	220,280.64	1,273,080.23
JUNE 30, 1890.						
Loan of 1892.....	4,050.00	.....	4,050.00	119.25	11.39	107.86
Loan of July and August, 1891, continued at 3½ per cent.....	1,000.00	.....	1,000.00	34.00	16.88	18.12
Funded loan of 1891.....	3,000.00	.....	3,000.00	137.50	109.14	28.36
Funded loan of 1891.....	12,136,750.00	710,666.79	12,847,416.79	537,523.68	99,598.99	467,934.69
Funded loan of 1907.....	27,695,600.00	7,536,058.37	35,231,658.37	1,045,804.50	154,655.13	889,149.37
Total.....	39,840,400.00	8,246,725.16	48,087,125.16	1,583,619.93	224,381.53	1,357,238.40
JUNE 30, 1891.						
Loan of 1892.....	6,300.00	.....	6,300.00	183.00	44.76	138.24
Loan of July and August, 1891.....	950.00	.....	950.00	57.00	28.50	28.50
Loan of 1893.....	100.00	.....	100.00	6.00	3.00	3.00
Funded loan of 1891.....	27,890,400.00	69,945.63	27,960,345.63	1,075,088.24	1,156,413.38	81,325.14
Funded loan of 1907.....	16,134,000.00	3,790,140.65	19,924,140.65	645,641.50	54,310.28	591,331.22
Total.....	44,001,750.00	3,860,086.28	47,861,836.28	1,720,775.74	1,210,799.92	510,175.82
JUNE 30, 1892.						
War bounty scrip.....	50.00	.....	50.00	2.25	1.42	.83
Loan of 1890.....	10,000.00	.....	10,000.00	250.00	250.00	.....
Loan of July and August, 1891, continued at 3½ per cent.....	10,650.00	.....	10,650.00	370.12	93.30	276.82
Loan of 1894, continued at 3½ per cent.....	50.00	.....	50.00	1.75	1.15	1.00
Funded loan of 1891.....	350.00	.....	350.00	11.67	28.76	15.09
Funded loan of 1891, continued at 3½ per cent.....	500.00	.....	500.00	10.79	6.25	6.54
Loan of 1892.....	15,700.00	.....	15,700.00	218.00	53.64	164.36
Funded loan of 1891.....	24,225,800.00	.....	24,225,800.00	1,085,419.69	179,940.75	905,478.94
Funded loan of 1891, continued at 2 per cent.....	47,700.00	.....	47,700.00	792.38	41.93	750.45
Total.....	24,310,800.00	.....	24,310,800.00	1,087,076.65	180,412.20	906,694.45

TABLE E.—STATEMENT SHOWING THE PURCHASE AND REDEMPTION OF BONDS ON ACCOUNT OF THE SINKING FUND, ETC.—Continued.

Year ended—	Principal re- deemed.	Premium paid.	Net cost in currency.	Net cost estimated in gold.	Interest due at close of fi- scal year.	Accrued interest paid in coin.	Balance of interest due at close of fiscal year.
JUNE 30, 1893.							
War-bounty scrip.....	\$35.00	.....	.....	\$35.00	90.75	90.75	.....
Loan of February, 1891.....	1,000.00	.....	.....	1,000.00	90.00	90.00	90.00
Loan of July and August, 1891.....	7,600.00	.....	.....	7,600.00	298.00	2,858.00	2,130.00
Loan of July and August, 1891, continued at $\frac{3}{4}$ per cent.....	2,000.00	.....	.....	2,000.00	18.00	24.74	10.26
Loan of 1893, continued at $\frac{3}{4}$ per cent.....	1,000.00	.....	.....	1,000.00	17.50	8.10	9.40
Funded loan of 1891, continued at $\frac{3}{4}$ per cent.....	1,000.00	.....	.....	1,000.00	23.33	23.47	23.47
Loan of 1892.....	75,850.00	.....	.....	75,850.00	2,453.75	877.80	2,275.95
Funded loan of 1891.....	511,700.00	.....	.....	511,700.00	19,580.99	5,977.72	10,603.27
Total.....	601,175.00	.....	.....	601,175.00	19,580.92	8,837.97	10,731.35
JUNE 30, 1894.							
Loan of July and August, 1891.....	100.00	.....	.....	100.00	5.00	3.00	3.00
Loan of July and August, 1891, continued at $\frac{3}{4}$ per cent.....	18,000.00	.....	.....	18,000.00	690.00	270.80	359.01
Funded loan of 1891.....	1,000.00	.....	.....	1,000.00	153.33	151.51	6.82
Funded loan of 1891, continued at $\frac{3}{4}$ per cent.....	15,400.00	.....	.....	15,400.00	359.33	134.71	224.53
Loan of 1892.....	4,400.00	.....	.....	4,400.00	73.00	22.29	50.71
Funded loan of 1891.....	176,000.00	.....	.....	176,000.00	6,278.81	1,721.51	4,557.30
Total.....	214,900.00	.....	.....	214,900.00	7,505.47	2,304.05	5,201.42
JUNE 30, 1895.							
Loan of July and August, 1891.....	7,400.00	.....	.....	7,400.00	325.50	321.00	4.50
Loan of 1892.....	8,000.00	.....	.....	8,000.00	40.00	40.00	.....
Funded loan of 1891.....	2,100.00	.....	.....	2,100.00	182.33	454.84	291.31
Funded loan of 1891, continued at $\frac{3}{4}$ per cent.....	2,500.00	.....	.....	2,500.00	96.43	18.99	15.47
Loan of 1892.....	7,350.00	.....	.....	7,350.00	97.12	49.67	47.45
Funded loan of 1891.....	96,200.00	.....	.....	96,200.00	3,506.04	1,610.73	1,695.31
Total.....	119,550.00	.....	.....	119,550.00	4,221.45	2,743.83	1,477.62
JUNE 30, 1896.							
Oregon war debt.....	50.00	.....	.....	50.00	12.00	12.00	.....
Loan of July and August, 1891.....	500.00	.....	.....	500.00	30.00	15.00	15.00
Loan of 1893.....	500.00	.....	.....	500.00	30.00	15.00	15.00
Funded loan of 1891.....	3,200.00	.....	.....	3,200.00	394.17	397.43	3.26
Loan of July and August, 1891, continued at $\frac{3}{4}$ per cent.....	2,000.00	.....	.....	2,000.00	70.00	85.00	85.00
Loan of 1892.....	8,200.00	.....	.....	8,200.00	41.50	22.10	19.40

Funded loan of 1891.....	58,150.00	.....	58,150.00	.....	2,876.41	1,189.88	1,716.73
Total.....	67,800.00	.....	67,800.00	.....	3,454.08	1,656.21	1,797.87
JUNE 30, 1897.							
Loan of July and August, 1891.....	2,400.00	.....	2,400.00	.....	2,175.00	2,169.00	6.00
Five-twentieths of 1892.....	1,000.00	.....	1,000.00	.....	530.00	486.74	33.26
Loan of 1893.....	500.00	.....	500.00	.....	30.00	15.00	15.00
Funded loan of 1891.....	500.00	.....	500.00	.....	16.87	1.37	15.50
Funded loan of 1891 continued at 3½ per cent.....	1,000.00	.....	1,000.00	.....	23.33	8.75	14.58
Loan of July and August, 1891 continued at 3½ per cent.....	1,500.00	.....	1,500.00	.....	43.75	25.03	18.72
Loan of July 12, 1892.....	1,800.00	.....	1,800.00	.....	32.00	10.49	21.51
Funded loan of 1891.....	287,400.00	.....	287,400.00	.....	13,426.16	7,178.20	6,247.96
Total.....	245,900.00	.....	245,900.00	.....	16,266.31	9,804.58	6,372.38
JUNE 30, 1898.							
Loan of July and August, 1891.....	11,000.00	.....	11,000.00	.....	2,130.00	1,830.00	300.00
Funded loan of 1891.....	2,450.00	.....	2,450.00	.....	233.95	174.65	59.30
Funded loan of 1891 continued at 3½ per cent.....	100.00	.....	100.00	.....	1.46	.88	.58
Loan of July 12, 1892.....	21,350.00	.....	21,350.00	.....	369.15	166.87	202.31
Loan of July 12, 1893.....	100.00	.....	100.00	.....	3.50	.36	3.14
Total.....	35,200.00	.....	35,200.00	.....	2,738.09	2,172.76	566.38
Grand total.....	815,122,425.00	\$43,988,454.43	\$157,677,967.61	836,870,569.21	29,504,570.88	8,267,670.00	21,234,900.88

Dr.

TABLE F.—SINKING FUND ACCOUNT FOR FISCAL YEAR 1898.

Cr.

July 1, 1897	To balance from last year.....	\$245,941,736.33	June 30, 1898	By principal of bonded debt redeemed in 1898.....	\$35,200.00
	To 1 per cent on the principal of the public debt on June 30, 1897, less coin and currency certificates, Treasury notes, and cash available for reduction of the debt, viz., \$1,126,793,712.90.....	11,267,937.13		By accrued interest thereon.....	2,172.76
	To interest on redemption prior to fiscal year 1898.....	40,067,283.99		By fractional currency and notes redeemed in 1898.....	4,900.00
June 30, 1898	To interest on \$39,750, amount of debt "paid" during fiscal year 1898.....	3,017.64		By accrued interest thereon.....	200.40
	Total.....	297,279,975.09		By balance.....	297,237,501.98
					297,279,975.09

158 REPORT OF THE SECRETARY OF THE TREASURY.

TABLE G.—POPULATION, NET REVENUE, AND NET EXPENDITURES OF THE GOVERNMENT FROM 1837 TO JUNE 30, 1898, AND PER CAPITA OF THE REVENUES AND PER CAPITA OF EXPENDITURES.

Year.	Population.	Net revenue.	Per capita on revenue.	Net expenses.	Per capita on expenditures.
1837	15,655,000	\$24,954,153.00	\$1.59	\$37,243,496.00	\$2.38
1838	16,112,000	26,302,562.00	1.63	33,865,059.00	2.10
1839	16,584,000	31,482,750.00	1.90	26,899,128.00	1.62
1840	17,069,453	19,480,115.00	1.14	24,317,579.00	1.42
1841	17,561,000	16,860,160.00	.96	26,566,873.00	1.51
1842	18,132,000	19,976,197.00	1.10	25,205,761.00	1.39
1843 (six months).	18,694,000	8,302,702.00	.89	11,858,075.00	1.27
1844	19,276,000	29,321,374.00	1.62	22,337,571.00	1.16
1845	19,878,000	29,970,106.00	1.51	22,937,408.00	1.15
1846	20,500,000	29,699,968.00	1.45	27,766,925.00	1.35
1847	21,143,000	26,495,769.00	1.25	57,281,412.00	2.71
1848	21,805,000	35,735,779.00	1.64	45,377,225.00	2.08
1849	22,489,000	31,208,143.00	1.39	45,051,657.00	2.00
1850	23,191,876	43,603,439.00	1.88	39,543,492.00	1.71
1851	23,995,000	52,559,304.00	2.19	47,709,017.00	1.99
1852	24,802,050	49,846,816.00	2.01	44,194,919.00	1.78
1853	25,615,000	61,587,054.00	2.40	48,184,111.00	1.88
1854	26,433,000	73,800,341.00	2.79	58,044,862.00	2.20
1855	27,258,000	65,350,575.00	2.40	59,742,668.80	2.19
1856	28,083,000	74,056,699.00	2.64	69,571,026.00	2.48
1857	28,916,000	68,965,313.00	2.38	67,795,708.00	2.34
1858	29,753,000	46,655,366.00	1.57	74,185,270.00	2.49
1859	30,596,000	53,486,466.00	1.75	69,070,977.00	2.26
1860	31,443,321	56,064,608.00	1.78	63,130,598.00	2.01
1861	32,064,000	41,509,930.00	1.29	66,546,645.00	2.06
1862	32,704,000	51,987,455.00	1.59	474,761,819.00	14.52
1863	33,365,000	112,697,291.00	3.38	714,740,725.00	21.42
1864	34,046,000	264,626,772.00	7.77	865,322,614.00	25.42
1865	34,748,000	333,714,605.00	9.60	1,297,555,224.00	37.84
1866	35,460,000	558,032,620.00	15.73	520,809,417.00	14.68
1867	36,211,000	490,634,010.00	13.55	357,542,675.00	9.87
1868	36,973,000	405,038,083.00	10.97	377,340,285.00	10.21
1869	37,756,000	370,943,747.00	9.82	322,865,278.00	8.55
1870	38,558,371	411,255,478.00	10.67	309,653,561.00	8.03
1871	39,555,000	383,323,945.00	9.69	292,177,188.00	7.39
1872	40,596,000	374,106,888.00	9.22	277,517,963.00	6.84
1873	41,677,000	333,738,205.00	8.01	290,945,245.00	6.97
1874	42,796,000	304,978,755.00	7.13	302,633,873.00	7.07
1875	43,951,000	288,000,061.00	6.55	274,623,393.00	6.25
1876	45,137,000	394,096,865.00	6.52	265,101,085.00	5.87
1877	46,353,000	281,406,419.00	6.07	241,384,475.00	5.21
1878	47,598,000	257,763,879.00	5.42	236,964,327.00	4.96
1879	48,866,000	273,827,184.00	5.60	166,947,884.00	3.46
1880	50,155,783	333,526,611.00	6.65	267,642,958.00	5.34
1881	51,316,000	360,782,293.00	7.00	260,712,888.00	5.08
1882	52,495,000	403,525,250.00	7.68	257,981,440.00	4.91
1883	53,693,000	398,287,582.00	7.41	265,408,138.00	4.94
1884	54,911,000	348,519,870.00	6.36	244,126,244.00	4.44
1885	56,148,000	328,690,706.00	5.76	260,226,935.00	4.63
1886	57,404,000	336,439,727.00	5.86	242,483,138.00	4.22
1887	58,680,000	371,403,277.00	6.33	267,932,179.00	4.56
1888	59,974,000	379,266,075.00	6.32	a 267,924,801.00	4.46
1889	61,289,000	387,050,059.00	6.31	b 299,288,978.00	4.88
1890	62,622,250	403,080,982.00	6.43	c 318,040,710.00	5.07
1891	63,975,000	392,612,447.31	6.14	d 365,773,905.35	5.71
1892	65,516,000	354,937,784.24	5.42	845,023,330.58	5.27
1893	66,946,000	385,819,628.78	5.76	883,477,954.49	5.73
1894	68,397,000	297,722,019.25	4.37	367,525,279.83	5.37
1895	69,878,000	313,390,075.11	4.48	356,195,298.29	5.10
1896	71,390,000	326,976,200.38	4.58	352,179,446.06	4.93
1897	72,937,000	347,721,705.16	4.77	365,774,159.57	5.01
1898	74,522,000	405,321,335.20	5.44	443,388,582.80	5.96

a This includes \$8,270,842.46 of "premiums on purchase of bonds."

b This includes \$17,292,362.65 of "premiums on purchase of bonds."

c This includes \$20,304,224.06 of "premiums on purchase of bonds."

d This includes \$10,401,220.61 of "premiums on purchase of bonds."

NOTE.—The net revenue and expenses and per capita on revenues for 1891 were erroneously stated by the Register of the Treasury in his reports for 1891, 1892, and 1893. (See Finance Reports for those years, pp. 845, 767, and 906.)

TABLE H.—INTERNAL AND CUSTOMS REVENUE AND EXPENSES OF COLLECTING, FROM 1858 TO 1898.

Year ending June 30—	Internal revenue.			Customs revenue.		
	Revenue.	Expenses of collecting. <i>a</i>		Revenue.	Expenses of collecting. <i>b</i>	
	Dollars.	Dollars.	Per cent.	Dollars.	Dollars.	Per cent.
1858.....	(c)	(c)	(c)	41,789,620.96	2,903,336.89	6.94
1859.....	(c)	(c)	(c)	49,545,824.38	3,407,931.77	6.85
1860.....	(c)	(c)	(c)	53,187,511.87	3,337,188.15	6.27
1861.....	(c)	(c)	(c)	39,582,125.64	2,843,455.84	7.18
1862.....	(c)	(c)	(c)	49,056,397.62	3,276,560.39	6.67
1863.....	37,640,787.95	108,685.00	.29	69,056,642.40	3,181,026.17	4.60
1864.....	109,741,134.10	253,372.99	.23	102,316,152.99	4,192,582.43	4.09
1865.....	209,461,215.25	385,239.52	.18	84,928,280.00	5,415,449.32	6.39
1866.....	309,226,813.42	5,783,128.77	1.87	179,046,651.58	5,342,469.99	2.98
1867.....	266,027,537.43	7,335,029.81	2.77	176,417,810.88	5,763,979.01	3.26
1868.....	191,067,589.41	8,705,366.36	4.55	164,464,599.56	7,641,116.68	4.65
1869.....	156,356,460.86	7,257,176.11	4.59	180,048,426.63	5,388,082.31	2.99
1870.....	184,899,756.49	7,253,439.81	3.92	194,538,374.44	6,238,747.68	3.20
1871.....	143,098,153.63	7,593,714.17	5.30	206,270,408.05	6,568,350.61	3.18
1872.....	130,642,177.72	5,694,116.86	4.36	216,370,286.77	6,950,173.88	3.21
1873.....	113,729,814.14	5,340,230.00	4.69	188,089,522.70	7,077,864.70	3.76
1874.....	102,409,784.90	4,509,976.05	4.40	163,103,833.69	7,321,469.94	4.49
1875.....	110,007,493.58	4,289,442.71	3.89	157,167,722.35	7,028,521.80	4.47
1876.....	116,700,732.03	3,942,613.72	3.38	148,071,984.61	6,704,858.09	4.53
1877.....	118,630,407.83	3,556,943.85	2.99	130,956,493.07	6,501,037.57	4.96
1878.....	110,581,624.74	3,280,162.22	2.96	130,170,680.20	5,826,974.32	4.47
1879.....	113,561,610.58	3,527,956.56	3.10	137,250,047.70	5,477,421.52	3.96
1880.....	124,009,373.92	3,657,105.10	2.95	186,522,064.60	6,023,253.53	3.23
1881.....	135,264,385.51	4,327,793.24	3.20	198,159,676.02	6,383,288.10	3.22
1882.....	146,497,595.45	4,097,241.34	2.80	220,410,730.25	6,506,359.26	2.95
1883.....	144,720,368.98	4,424,707.39	3.06	214,706,496.93	6,593,509.43	3.07
1884.....	121,598,072.51	4,216,847.28	3.47	195,067,489.76	6,709,485.76	3.44
1885.....	112,498,725.54	3,853,035.94	3.42	181,471,939.34	6,494,847.29	3.58
1886.....	116,805,936.48	3,578,679.42	3.06	192,905,023.44	6,427,612.67	3.33
1887.....	118,823,391.22	3,826,507.98	3.22	217,284,893.13	6,855,801.74	3.16
1888.....	124,296,871.98	3,626,038.91	2.92	219,091,173.63	7,156,187.77	3.27
1889.....	130,881,513.92	3,770,388.72	2.88	223,832,741.69	7,030,487.00	3.14
1890.....	142,606,705.81	3,780,950.41	2.65	229,668,584.57	6,859,986.09	2.98
1891.....	145,686,249.44	4,003,485.65	2.75	219,522,205.23	6,964,367.09	3.17
1892.....	153,971,072.57	3,879,082.31	2.52	177,452,964.15	6,646,276.05	3.74
1893.....	161,027,023.93	4,144,927.02	2.57	203,355,016.73	6,756,790.98	3.32
1894.....	147,111,232.81	3,749,029.22	2.55	181,818,530.62	6,791,872.86	3.74
1895.....	143,421,672.02	3,754,935.45	2.62	152,158,617.45	6,738,990.92	4.43
1896.....	146,762,864.74	3,846,887.55	2.62	160,021,751.67	7,237,796.40	4.52
1897.....	146,088,574.29	3,606,798.85	2.46	176,554,126.65	7,075,372.05	4.01
1898.....	170,900,641.49	3,705,256.95	2.17	149,575,062.35	7,152,276.58	4.78

a The cost of collecting the internal revenue embraces the following items: Salaries and expenses of collectors, including pay of deputy collectors, clerks, etc., and including expenses incident to enforcing the provisions of law taxing oleomargarine; salaries and expenses of revenue agents, surveyors of distilleries, gaugers, storekeepers, and miscellaneous expenses; paper for internal-revenue stamps, and expenses of detecting and punishing violations of internal-revenue laws.

b The expenses of collecting the revenue from customs includes all sums drawn from the appropriation made by Congress for that purpose. The money is expended for salaries, rent, labor in weighing, gauging, and measuring imported merchandise, revenue boatmen, repairs, and other expenses incident to rented buildings, stationery, and the traveling expenses of special agents, but does not include expenditures for revenue cutters, fuel, lights, water, furniture, janitors, etc., for buildings owned by the Government, nor expenditures for erecting new buildings, all of which are paid for from specific appropriations made for those purposes.

The expenses of collecting internal and customs revenue do not include the expenditures for salaries, etc., incident to auditing these accounts in the Departments at Washington.

c No data.

TABLE I.—STATEMENT SHOWING THE REVENUES AND EXPENDITURES OF THE GOVERNMENT BY MONTHS; THE LEGAL-TENDER NOTES, NET GOLD, AND AVAILABLE CASH IN THE TREASURY AT THE END OF EACH MONTH; THE MONTHLY REDEMPTION OF LEGAL-TENDER NOTES IN GOLD, AND THE IMPORTS AND EXPORTS OF GOLD, FROM JANUARY, 1879, TO JUNE, 1888, INCLUSIVE.

Month.	Revenues, exclusive of postal.	Expenditures, exclusive of principal of debt, and premium.	Surplus revenues.	Legal-tender notes in Treasury.	Net gold in Treasury.	Available cash balance, including net gold.	Legal-tender notes redeemed in gold.	Imports of gold.	Exports of gold.
1879—									
January.....	\$20,757,406	\$23,478,888	\$11,721,482	\$30,570,531	\$115,674,227	\$336,449,981	\$1,571,725	\$274,707	\$246,096
February.....	19,844,163	17,895,024	1,449,139	44,494,978	116,886,279	428,911,460	909,249	187,388	115,513
March.....	20,750,080	21,510,888	1,760,002	50,694,660	117,162,166	408,911,570	952,766	188,500	76,985
April.....	19,796,565	18,042,382	1,744,283	39,539,823	118,809,680	428,744,833	699,773	170,884	430,010
May.....	27,223,268	26,694,264	5,529,004	51,670,442	121,300,140	475,063,096	1,339,883	185,225	350,003
June.....	25,562,892	26,030,382	5,531,910	45,038,904	119,956,655	379,642,919	2,503,302	143,338	1,441,080
Total for 6 months.....	137,368,829	134,058,842	3,309,987	.....	.....	.....	7,976,698	1,100,050	2,755,967
1880—									
July.....	25,723,768	45,029,627	19,305,859	23,541,496	130,320,583	245,608,019	954,800	251,381	349,779
August.....	26,883,496	26,504,087	1,379,409	36,222,606	126,537,690	212,035,932	581,400	6,733,313	350,664
September.....	26,521,364	23,194,771	3,326,593	18,933,264	154,763,705	202,957,575	603,455	27,528,082	132,443
October.....	27,171,029	23,984,917	7,186,112	17,327,567	157,140,114	203,417,712	740,295	19,178,834	285,836
November.....	24,861,029	23,820,650	8,040,978	16,388,454	147,247,977	193,147,767	77,489	17,423,834	105,989
December.....	24,628,948	16,354,659	8,274,289	12,570,484	146,194,182	192,307,196	122,359	6,562,650	134,788
January.....	23,827,580	28,182,650	5,644,930	11,614,592	143,340,077	196,303,772	71,580	7,795,568	228,205
February.....	27,869,648	20,045,921	7,763,727	15,054,092	136,995,458	188,960,586	72,080	862,180	149,612
March.....	30,323,665	13,320,440	17,003,225	15,760,081	136,766,540	191,798,977	43,020	196,432	1,186,679
April.....	30,103,869	18,338,183	11,770,186	17,489,280	130,726,640	191,798,977	16,000	123,580	1,081,192
May.....	29,000,101	14,382,226	14,617,876	18,183,020	130,669,196	198,998,696	51,000	648,272	104,467
June.....	27,621,089	21,311,526	6,309,564	18,768,569	118,181,527	188,670,884	47,200	.....	541,361
Total for 12 months.....	338,526,611	264,847,637	68,678,974	.....	.....	.....	3,780,688	80,768,306	3,639,025
1881—									
July.....	34,521,013	26,532,121	8,011,108	19,024,124	115,274,646	186,190,329	25,000	244,330	61,886
August.....	32,864,049	23,667,616	9,196,433	20,441,849	120,018,180	186,190,329	22,000	9,145,300	90,909
September.....	30,101,835	19,398,706	11,715,129	17,263,613	127,744,733	186,190,329	15,000	18,646,968	80,814
October.....	28,095,209	21,895,004	6,200,205	13,793,992	131,276,253	181,042,127	12,000	16,255,053	280,671
November.....	26,612,867	21,924,011	4,688,857	11,124,867	128,276,130	180,621,571	12,000	9,545,291	290,759
December.....	23,045,721	19,667,441	3,378,280	8,784,816	140,213,718	184,344,535	35,000	16,606,026	158,574
January.....	26,065,013	22,027,206	4,037,807	10,551,616	140,213,718	184,344,535	15,000	4,739,092	86,415
February.....	27,639,571	16,754,677	10,784,894	10,551,616	146,938,833	208,090,892	13,750	7,169,478	271,379
March.....	29,434,368	21,538,547	7,895,821	14,773,193	146,938,833	208,090,892	.....	15,831,980	88,788
April.....	30,867,779	21,548,370	9,319,409	14,472,086	137,358,574	204,622,304	.....	1,315,777	68,493
May.....	31,681,650	21,697,639	10,184,013	16,062,305	137,358,574	204,622,304	.....	1,315,777	68,493
June.....	30,265,206	24,291,767	15,973,439	18,564,092	137,358,574	204,622,304	.....	1,315,777	68,493
Total for 12 months.....	380,782,298	259,651,689	101,130,604	.....	.....	.....	271,750	100,031,259	2,566,133

July.....	33,890,016	34,471,543	3,575,536	19,099,910	149,183,855	201,544,433	750,833	112,861
August.....	37,537,864	35,135,453	12,402,493	19,670,189	164,193,073	199,820,390	5,427,190	178,648
September.....	34,126,621	32,431,023	17,445,983	19,445,983	164,193,073	199,820,390	5,427,190	178,648
October.....	35,710,463	30,431,829	18,493,277	17,411,073	178,025,694	193,868,619	8,089,262	176,941
November.....	35,683,318	31,306,777	16,393,519	16,453,900	167,439,548	198,813,437	8,773,173	197,134
December.....	33,180,182	34,070,371	8,773,931	17,384,864	159,973,549	190,532,247	1,134,649	106,084
1893—January.....	30,916,324	32,073,920	8,842,486	18,264,850	148,585,554	197,186,234	1,081,989	102,219
February.....	33,813,509	34,871,444	18,944,463	17,440,415	181,290,437	198,157,491	639,565	7,231,893
March.....	34,468,580	31,340,533	18,223,023	17,637,624	149,607,983	194,150,490	639,565	2,223,840
April.....	34,123,081	27,197,422	8,970,059	19,873,680	145,672,926	191,861,776	254,432	2,842,449
May.....	31,786,789	19,459,073	16,327,716	21,425,589	145,477,970	186,862,413	257,143	13,236,404
June.....								5,572,251
Total for 12 months.....	403,526,260	297,981,440	145,542,810	.....	.....	.....	34,377,054	32,587,880
July.....	36,333,726	29,417,846	6,920,880	22,749,590	140,062,590	184,123,970	182,202	4,764,422
August.....	39,862,619	29,068,245	10,194,374	24,068,941	144,311,681	186,459,013	424,678	1,637,213
September.....	31,645,517	21,458,119	15,859,468	21,458,119	147,631,163	188,641,075	1,185,799	2,239,849
October.....	31,163,383	20,977,005	11,134,573	19,854,186	145,435,478	203,642,801	2,885,410	104,616
November.....	30,194,653	24,090,223	6,005,424	20,765,822	144,806,314	207,606,783	2,241,787	52,725
December.....	30,416,973	22,514,913	13,861,665	18,879,385	131,989,785	204,946,530	1,466,639	175,699
1893—January.....	32,045,466	22,217,077	9,823,469	21,162,237	135,648,185	200,046,530	291,011	34,000
February.....	32,562,177	24,663,250	8,696,977	21,614,317	135,107,161	186,218,888	3,244,859	745,715
March.....	32,306,265	24,391,239	8,014,946	20,413,561	141,308,204	191,533,568	2,311,851	284,180
April.....	28,164,511	24,790,120	8,026,609	20,919,623	139,439,243	185,656,968	2,232,015	2,050,215
May.....	31,439,584	27,258,533	4,181,061	20,631,825	133,718,103	180,529,237	898,246	935,106
June.....	34,373,966	19,013,534	16,861,652	23,468,839	138,271,196	197,177,943	.....	597,149
Total for 12 months.....	398,287,532	265,408,128	132,879,444	.....	.....	.....	17,734,149	11,600,888
July.....	32,000,813	37,609,830	5,606,017	24,747,646	142,705,435	201,122,999	429,754	100,870
August.....	31,183,203	24,175,068	6,012,534	25,736,766	149,625,435	199,090,167	1,977,354	182,822
September.....	30,143,701	14,427,069	16,715,712	25,324,420	151,115,608	203,175,412	2,283,273	196,846
October.....	31,037,269	21,976,111	9,061,138	24,968,037	137,338,768	204,491,640	4,261,450	132,530
November.....	29,309,742	25,398,046	12,711,696	25,509,644	157,235,768	188,122,405	1,008,213	403,968
December.....	25,030,279	12,055,437	12,074,842	25,164,249	156,235,599	186,096,241	5,326,413	153,766
1894—January.....	27,820,145	19,900,931	7,869,214	25,321,189	144,350,736	204,184,200	432,804	8,411,167
February.....	27,408,013	26,306,012	2,099,401	27,663,632	144,038,303	190,102,213	903,261	12,224,135
March.....	28,070,739	12,146,397	16,924,443	30,949,857	142,259,827	206,510,483	3,010,439	21,047,935
April.....	27,309,813	23,938,237	8,371,475	30,845,833	139,694,821	206,087,499	1,626,531	2,711,864
May.....	30,371,894	19,171,118	10,600,576	27,701,841	143,206,968	200,966,324	2,074,599	181,105
June.....	30,932,088	16,116,116	10,815,974	27,993,802	138,729,964	200,764,998	22,831,317	41,081,957
Total for 12 months.....	343,519,870	244,126,244	104,398,626	.....	.....	.....	.....	.....
July.....	29,273,909	33,690,398	4,419,485	29,562,900	119,048,061	183,111,149	2,283,103	159,106
August.....	31,366,509	27,694,326	8,672,183	26,573,554	123,485,717	185,657,079	2,758,300	175,619
September.....	29,230,119	17,173,912	13,055,307	20,984,873	130,514,383	204,247,982	1,477,672	77,830
October.....	26,189,438	23,345,061	2,844,367	16,172,173	134,670,790	203,537,189	2,451,032	192,533
November.....	22,235,566	21,374,428	861,140	9,626,683	138,015,071	194,624,455	8,192,904	443,529
December.....	22,885,045	21,856,281	978,734	11,739,575	141,688,433	192,198,215	2,231,799	230,557

a Excess of expenditures.

TABLE I.—STATEMENT SHOWING THE REVENUES AND EXPENDITURES OF THE GOVERNMENT BY MONTHS, ETC.—Continued.

Month.	Revenues, exclusive of postal.	Expenditures exclusive of principal of debt and premium.	Surplus revenues.	Legal-tender notes in Treasury.	Net gold in Treasury.	Available cash balance, including net gold.	Legal-tender notes redeemed in gold.	Imports of gold.	Exports of gold.
1886—									
January.....	\$25,872,129	\$21,160,424	\$4,711,705	\$18,873,469	\$125,187,595	\$194,554,277	\$460,000	\$2,074,928	\$1,446,326
February.....	24,068,899	19,222,957	4,845,942	18,726,822	137,346,553	199,744,172	215,000	1,887,965	1,635,853
March.....	26,310,735	24,844,630	1,466,105	20,473,288	128,793,257	199,886,144	995,000	1,754,597	1,833,083
April.....	26,083,977	26,864,696	6,220,659	21,465,690	117,927,935	200,636,203	.....	782,583	1,157,996
May.....	28,709,136	23,597,525	5,111,611	23,492,109	115,810,533	205,713,201	.....	564,735	1,743,975
June.....	27,157,016	15,255,658	11,901,358	15,462,879	120,286,895	217,198,975	332,000	229,763	741,992
Total for 12 months.....	323,690,705	260,226,935	63,463,771	.....	.....	.....	2,222,000	26,691,696	8,477,892
1887—									
July.....	26,767,293	33,683,234	6,915,941	16,968,997	126,076,595	215,850,735	464,500	588,412	1,329,570
August.....	26,064,261	23,792,635	4,271,626	24,793,656	126,371,928	219,646,977	105,200	733,907	1,859,317
September.....	26,971,026	16,013,054	13,957,972	27,944,332	133,113,324	233,206,722	91,900	2,986,116	151,568
October.....	26,872,905	21,533,673	7,339,232	27,550,341	142,838,589	243,666,741	48,300	1,323,811	139,120
November.....	25,381,164	23,594,936	1,786,228	25,735,643	146,391,496	245,769,440	85,300	5,096,358	438,460
December.....	25,757,702	15,032,713	10,724,989	27,941,200	147,991,809	257,897,915	130,200	5,620,191	1,789,974
January.....	24,737,858	22,753,131	1,984,727	23,300,339	136,086,610	265,217,967	63,500	1,705,841	2,561,674
February.....	25,971,994	22,205,315	3,766,679	23,277,292	144,164,038	265,914,943	129,200	986,364	5,654,309
March.....	30,076,168	13,961,676	16,094,492	30,289,485	151,879,525	275,765,409	647,800	840,337	9,920,761
April.....	26,871,590	21,052,775	5,818,815	26,068,774	155,865,308	278,349,307	514,600	350,751	4,812,256
May.....	27,751,724	17,856,327	10,895,397	26,289,098	156,304,709	281,911,856	1,754,100	248,560	7,385,059
June.....	32,510,620	21,690,969	10,819,657	22,668,317	156,793,749	287,513,969	2,832,069	262,691	8,380,143
Total for 12 months.....	398,439,727	242,433,138	93,966,589	.....	.....	.....	6,863,699	20,743,349	42,952,191
1888—									
July.....	29,638,971	29,403,011	233,960	21,939,142	158,933,205	283,393,146	1,296,339	582,052	1,175,311
August.....	32,195,326	26,908,967	2,286,359	35,579,647	157,732,289	291,514,029	1,446,269	4,935,557	1,380,765
September.....	31,684,702	20,552,192	11,132,510	36,519,081	157,917,211	279,844,031	239,200	4,994,609	808,860
October.....	29,538,498	22,474,961	6,063,537	30,997,305	158,537,179	278,970,968	173,200	5,412,995	294,012
November.....	27,576,105	25,657,709	1,918,394	29,545,188	163,930,220	274,182,628	146,000	9,310,607	855,245
December.....	28,622,815	10,139,100	10,139,100	29,169,326	170,912,414	279,521,563	110,200	11,655,907	305,847
January.....	28,395,921	25,433,715	6,011,019	26,383,683	168,475,361	291,584,675	104,600	3,535,928	1,143,611
February.....	29,737,878	25,485,131	4,252,747	25,699,203	175,130,262	279,779,823	125,640	1,677,397	1,677,397
March.....	33,348,165	21,827,871	11,520,294	21,159,938	181,939,848	282,878,549	173,200	5,779,965	2,444,926
April.....	30,076,657	20,229,703	9,846,954	20,225,474	180,902,431	286,028,531	142,280	329,278	1,494,246
May.....	33,834,282	22,409,249	11,424,833	21,787,876	186,667,774	291,144,324	175,825	1,296,269	903,939
June.....	33,070,986	14,959,888	18,111,097	20,013,797	186,675,669	304,316,868	90,320	505,253	620,316
Total for 12 months.....	371,453,276	267,932,180	103,471,098	.....	.....	.....	4,234,073	42,910,601	9,701,187

July.....	30,814,873	35,136,924	a 4,322,052	19,632,740	186,306,330	291,896,110	115,700	2,177,753	496,776
August.....	26,616,116	28,293,766	7,666,330	21,157,589	183,374,164	290,746,623	149,820	6,978,776	841,941
September.....	31,698,808	17,027,786	12,832,020	17,610,212	192,779,947	290,063,062	149,820	14,080,274	176,917
October.....	31,808,173	19,711,467	13,091,705	15,261,087	202,856,893	290,071,978	43,790	12,889,683	312,503
November.....	29,128,668	28,378,980	16,752,879	16,318,220	211,880,528	302,827,449	46,380	1,952,568	390,136
December.....	29,059,604	12,980,554	16,079,850	15,424,425	208,008,130	312,105,983	34,230	1,805,248	366,986
1888—	30,773,207	27,866,496	8,906,811	18,015,469	202,955,184	321,566,992	19,250	1,396,471	624,201
January.....	31,151,981	19,898,468	11,253,463	23,297,087	212,889,914	329,596,323	30,921	1,014,068	1,667,018
February.....	28,867,878	16,021,507	12,246,666	24,170,623	218,818,253	341,167,639	14,021	2,270,840	2,113,510
March.....	29,851,790	24,418,972	5,432,818	28,491,614	213,239,994	341,408,408	38,950	7,448,164	958,087
April.....	32,918,202	25,076,875	7,841,827	33,928,200	200,301,139	347,846,974	319,271	7,876,776	8,876,776
May.....	32,490,777	15,212,079	17,278,698	37,983,204	183,866,247	335,827,012	13,000	293,170	7,154,374
June.....	379,266,075	259,653,959	119,612,116	.....	.....	335,827,012	692,596	43,934,317	18,376,324
Total for 12 months.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
July.....	31,204,898	35,983,765	a 4,778,867	30,825,740	194,592,280	331,612,468	78,990	347,046	3,629,853
August.....	34,623,181	22,812,016	11,810,265	41,580,393	300,383,036	338,528,534	69,363	207,843	191,180
September.....	31,698,174	14,824,580	16,873,594	40,628,963	197,713,116	321,637,944	22,333	1,275,856	332,435
October.....	31,966,204	28,091,766	3,874,448	36,813,820	191,074,575	295,388,421	57,071	1,222,189	686,472
November.....	28,590,107	25,553,666	a 6,963,536	35,202,966	199,336,184	274,748,209	67,026	1,960,847	6,376,262
December.....	30,160,268	14,964,389	15,186,874	30,875,860	203,665,219	283,956,535	51,562	906,500	7,725,351
1889—	34,077,666	25,902,351	8,175,845	29,446,498	184,655,264	281,785,307	61,562	649,006	1,197,080
January.....	30,133,160	25,923,980	a 2,900,220	29,300,511	196,245,980	266,404,441	16,407	817,400	4,478,208
February.....	31,013,991	16,773,339	14,240,652	25,051,231	197,874,422	273,679,979	19,240	680,359	4,392,584
March.....	31,483,799	20,576,029	10,882,770	27,770,137	191,589,112	272,026,039	14,800	805,753	3,176,014
April.....	35,773,109	23,978,333	11,794,866	27,790,387	192,252,715	275,109,010	139,369	753,884	13,445,083
May.....	32,757,908	13,527,113	19,230,795	29,601,065	186,711,560	287,531,010	199,312	658,665	18,130,874
June.....	387,050,059	281,996,616	106,053,443	.....	.....	.....	730,143	10,284,858	59,952,285
Total for 12 months.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
July.....	31,886,200	41,700,438	a 9,814,238	30,384,366	182,218,164	274,000,688	79,936	856,332	5,281,786
August.....	34,470,905	a 59,954	a 59,954	32,325,885	189,664,670	251,773,370	16,475	497,927	5,420,176
September.....	31,416,291	14,190,118	17,226,273	21,170,258	189,194,423	254,206,227	12,124	2,400,691	289,580
October.....	32,492,608	28,207,280	6,185,348	17,303,501	187,572,386	248,512,435	370,028	796,968	2,233,443
November.....	30,716,997	23,166,459	7,547,608	14,619,922	187,036,672	242,633,405	18,098	1,773,767	675,743
December.....	29,595,504	23,191,021	6,404,483	6,873,925	190,833,063	232,524,103	41,909	1,304,850	312,920
1890—	34,661,158	25,773,455	8,888,703	7,600,234	177,386,285	228,835,040	111,295	1,059,837	400,949
January.....	30,866,218	24,103,784	6,762,424	9,583,865	187,983,948	228,308,201	10,963	1,476,433	1,170,600
February.....	34,778,181	15,540,141	19,238,040	6,919,657	185,287,715	227,689,876	9,513	1,622,432	1,456,824
March.....	34,017,041	29,284,006	a 7,853,035	7,209,411	186,235,572	227,213,765	19,464	478,353	1,052,355
April.....	35,443,552	26,422,413	9,021,139	9,892,789	190,544,884	228,336,448	30,164	280,902	288,020
May.....	37,546,892	14,641,383	22,945,509	11,804,190	190,232,405	245,612,464	11,987	385,830	8,731,866
June.....	403,080,983	297,736,487	105,344,496	.....	.....	.....	732,866	12,943,342	17,274,491
Total for 12 months.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
July.....	37,999,466	36,684,820	1,304,646	12,163,412	184,092,074	224,069,918	45,220	1,195,054	11,860,029
August.....	32,906,909	32,624,992	1,281,917	12,806,810	185,837,581	215,907,111	19,740	1,794,666	2,186,808
September.....	36,783,335	26,740,833	10,042,502	6,737,790	147,981,732	179,130,347	12,650	1,425,632	281,627
October.....	39,222,174	35,690,721	3,531,453	7,834,912	164,316,684	175,131,439	11,691	2,621,698	4,426,235
November.....	28,678,675	40,460,388	a 11,781,663	6,874,864	162,439,381	164,386,294	24,873	1,926,401	5,697,152
December.....	31,106,166	18,043,079	13,063,086	6,389,348	148,972,985	163,242,409	31,954	6,032,013	6,682,354

a Excess of expenditures.

TABLE I.—STATEMENT SHOWING THE REVENUES AND EXPENDITURES OF THE GOVERNMENT BY MONTHS, ETC.—Continued.

Month.	Revenues, exclusive of postal.	Expenditures, exclusive of principal of debt, and premium.	Surplus revenues.	Legal-tender notes in Treasury.	Net gold in Treasury.	Available cash balance, net gold.	Legal-tender notes including in gold.	Imports of gold.	Exports of gold.
1891.									
January.....	\$36,810,283	\$21,479,968	\$15,330,295	\$10,967,802	\$141,738,067	\$174,963,935	\$47,229	\$1,867,918	\$728,246
February.....	29,278,173	23,445,669	5,832,504	6,435,496	149,712,824	168,395,989	41,363	\$1,565,804	4,610,148
March.....	29,027,455	23,083,737	5,943,718	6,877,045	148,118,150	163,915,855	66,399	614,170	5,155,738
April.....	25,465,282	23,791,108	1,674,174	5,207,844	141,742,241	161,718,903	41,055	223,318	14,163,116
May.....	27,289,395	27,660,327	6,401,021	9,177,337	139,207,164	158,888,719	2,268,379	212,648	30,580,760
June.....	31,631,880	33,628,103	\$1,994,253	11,866,996	117,667,723	153,893,809	3,365,453	282,905	15,822,400
Total for 12 months.....	392,612,447	355,372,685	37,239,762	.....	.....	.....	5,968,070	18,232,567	86,362,654
1892.									
July.....	34,158,245	38,100,264	\$3,942,049	10,833,409	131,113,024	155,738,717	1,835,912	1,029,148	6,693,574
August.....	28,778,981	19,537,484	9,241,497	14,467,295	132,471,489	140,374,895	297,633	1,994,755	1,773,198
September.....	27,165,554	22,267,033	4,898,521	9,150,717	132,523,222	144,967,969	243,220	7,451,428	345,290
October.....	26,448,582	30,650,811	\$2,202,249	5,613,913	127,674,422	139,671,919	763,059	16,897,947	999,598
November.....	26,892,888	26,154,048	6,738,840	5,528,973	129,193,224	139,124,919	408,094	8,877,717	381,849
December.....	27,645,516	30,424,728	\$2,778,212	5,328,710	129,740,683	134,574,129	317,998	6,015,951	284,501
January.....	30,383,479	24,175,350	\$6,208,129	5,338,987	119,479,905	131,863,481	313,053	6,552,914	248,495
February.....	30,898,645	25,864,726	\$5,033,919	4,716,849	122,122,113	131,163,264	476,200	2,898,982	6,597,180
March.....	29,836,694	27,754,217	\$2,082,477	4,032,848	122,815,047	132,862,684	728,731	3,694,456	6,309,865
April.....	24,971,224	31,059,632	\$6,088,408	4,032,848	119,994,757	131,518,192	692,729	597,041	7,521,823
May.....	26,223,268	31,732,764	\$5,509,496	4,831,026	114,231,583	124,036,587	692,123	591,159	8,821,222
June.....	30,858,618	27,922,412	3,036,206	5,060,590	114,842,867	126,692,377	2,423,528	494,026	17,128,503
Total for 12 months.....	354,987,784	345,023,380	9,914,454	.....	.....	.....	9,125,843	49,699,454	50,195,327
1893.									
July.....	34,314,359	36,323,977	\$2,019,621	11,918,907	110,444,391	127,050,298	9,254,705	542,440	10,793,638
August.....	33,479,959	31,140,254	2,339,705	12,191,147	114,136,316	124,132,343	8,340,574	252,252	9,043,981
September.....	31,797,629	22,192,423	9,605,206	12,270,543	119,385,599	131,895,918	4,567,798	1,935,586	8,267,963
October.....	31,298,640	31,427,952	\$974,688	6,094,592	124,206,120	131,011,402	968,993	2,116,350	1,584,250
November.....	28,739,845	28,640,718	\$999,127	6,997,293	124,495,667	130,328,910	10,237,812	2,677,212	1,384,417
December.....	33,068,684	32,591,000	\$577,684	11,433,443	121,296,663	129,062,560	10,237,812	1,940,588	12,879,727
January.....	36,003,062	33,851,452	\$2,151,610	10,650,921	119,831,713	125,295,067	11,494,617	1,870,845	12,894,396
February.....	34,698,142	30,866,273	\$3,831,869	10,670,514	108,284,219	124,123,069	13,828,964	1,270,539	14,245,007
March.....	34,116,810	31,933,482	\$2,183,328	10,751,099	106,892,224	125,650,728	4,929,453	6,068,437	8,113,626
April.....	32,415,868	31,938,566	\$4,477,302	9,711,350	97,011,350	121,452,903	20,051,910	863,955	16,814,994
May.....	30,225,858	30,210,787	\$15,071	21,368,384	96,048,641	121,565,185	16,547,849	1,706,557	19,914,317
June.....	30,711,102	28,775,499	1,935,603	20,396,866	96,485,414	122,462,290	4,250,651	1,009,662	2,711,226
Total for 12 months.....	385,819,629	363,477,965	2,341,674	.....	.....	.....	102,100,945	21,174,361	108,680,844

July.....	50,905,776	89,676,889	18,943,822	99,202,938	117,887,599	1,036,015	5,950,613	174,213
August.....	23,990,885	33,505,228	18,990,705	94,202,122	106,875,092	2,348,222	41,572,081	946,509
September.....	24,563,756	35,478,010	8,746,951	93,582,173	106,875,092	3,840,727	6,878,945	1,438,862
October.....	23,893,895	30,588,797	4,890,594	82,934,868	95,199,618	695,392	1,583,937	511,018
November.....	23,979,401	31,802,028	5,035,397	82,934,868	95,199,618	516,372	4,471,575	331,743
December.....	23,312,077	30,068,261	7,146,234	80,891,170	90,878,555	517,418	746,245	2,854,545
1894-January.....	24,082,739	31,309,670	4,682,896	85,650,175	94,082,098	836,556	705,647	1,279,437
February.....	22,269,299	29,725,374	17,227,906	106,527,068	138,662,364	19,192,354	2,140,982	3,309,817
March.....	24,842,798	31,137,560	14,563,132	106,149,138	133,950,028	3,461,192	1,091,862	4,020,833
April.....	22,692,864	32,072,836	16,754,286	78,693,297	125,097,787	7,666,137	2,321,661	11,723,771
May.....	23,066,964	30,776,141	29,445,979	78,693,297	117,834,385	26,541,063	4,282,743	27,406,901
June.....	26,485,926	35,557,021	36,696,053	64,873,026	117,584,437	22,169,998	9,908,348	23,280,220
Total for 13 months.....	297,722,019	397,525,280	66,808,261	.....	.....	84,842,150	72,449,119	76,978,061
July.....	34,800,340	36,648,583	42,950,390	54,975,607	119,065,851	13,923,275	1,406,629	14,230,201
August.....	40,417,606	31,666,697	52,439,842	58,975,317	127,148,096	4,741,418	3,183,348	5,118,951
September.....	22,621,229	30,323,019	53,756,428	61,361,827	107,340,148	936,018	655,695	237,477
October.....	10,139,240	32,713,040	40,586,483	81,361,827	107,340,148	3,947,590	1,602,665	1,062,814
November.....	19,411,407	28,477,189	39,089,601	106,424,569	144,507,606	7,796,747	1,935,601	428,213
December.....	21,966,187	27,135,447	35,239,108	89,244,445	153,337,679	31,907,221	3,777,960	9,802,389
1895-January.....	27,804,400	34,523,447	85,627,989	44,705,967	144,603,302	45,117,738	1,231,339	25,929,828
February.....	22,888,057	35,094,085	84,223,215	87,065,511	178,197,587	5,030,862	5,632,197	1,565,194
March.....	26,470,576	35,716,957	91,792,746	90,643,397	187,917,260	1,089,085	7,246,384	3,126,094
April.....	26,247,856	32,990,676	69,736,082	91,247,145	180,817,916	1,017,971	4,923,371	2,893,010
May.....	25,272,078	28,553,210	61,537,457	90,151,409	185,370,101	1,166,492	4,856,264	1,585,071
June.....	26,615,474	21,683,029	54,276,232	107,512,363	195,240,153	1,046,196	2,096,391	131,641
Total for 13 months.....	313,390,075	356,196,298	642,805,223	.....	.....	117,354,198	35,146,754	66,121,183
July.....	39,069,686	38,548,064	49,897,589	107,236,487	187,149,532	3,326,795	571,451	3,397,518
August.....	28,952,097	32,568,185	57,647,881	100,329,837	184,039,157	16,564,067	1,534,086	16,867,261
September.....	27,549,678	34,320,492	70,107,454	92,911,974	185,405,365	17,377,437	749,456	17,424,065
October.....	27,901,748	34,503,425	77,520,347	92,933,966	177,947,999	2,166,853	1,797,040	1,878,897
November.....	25,966,548	27,199,283	90,156,477	79,333,966	177,405,398	16,034,606	591,309	14,069,497
December.....	29,288,828	35,814,317	106,264,654	63,262,268	178,027,200	20,212,005	3,104,448	15,481,347
1896-January.....	29,237,670	32,529,841	99,118,271	49,845,508	171,591,790	16,448,508	10,367,940	10,566,526
February.....	26,059,228	32,529,841	104,042,173	123,962,980	262,707,207	7,736,876	11,559,089	2,183,700
March.....	26,041,149	27,274,964	112,234,848	128,646,481	271,641,748	6,856,546	8,677,733	384,080
April.....	24,282,868	28,987,332	108,540,890	125,393,900	270,090,662	7,130,918	1,119,768	3,782,266
May.....	24,643,518	28,426,583	120,993,035	108,845,224	267,193,210	22,089,547	6,044,498	19,103,913
June.....	27,794,219	25,444,789	123,855,877	101,699,605	267,482,097	8,261,347	837,669	6,915,066
Total for 13 months.....	326,976,200	352,179,446	625,203,246	.....	.....	186,055,806	31,720,487	112,309,186
July.....	29,026,209	42,088,468	102,125,226	110,718,746	256,158,473	17,285,078	1,605,928	1,906,141
August.....	25,662,097	35,701,677	111,800,038	100,967,561	243,846,401	12,960,725	4,057,101	11,970,104
September.....	24,584,245	38,578,538	98,868,949	124,034,672	241,154,457	4,061,446	34,150,130	61,960
October.....	26,282,830	37,978,377	117,126,524	123,535,296	233,572,762	12,073,835	27,961,083	343,168
November.....	25,210,696	33,260,730	76,034,912	131,510,353	233,572,762	4,062,410	7,344,228	428,899
December.....	25,897,114	33,812,605	77,028,317	137,816,544	238,520,986	1,131,646	2,567,115	405,866

a Excess of expenditures.

TABLE I.—STATEMENT SHOWING THE REVENUES AND EXPENDITURES OF THE GOVERNMENT BY MONTHS, ETC.—Continued.

Month.	Revenues, exclusive of postal.	Expenditures, exclusive of principal of debt and premium.	Surplus revenues.	Legal-tender notes in Treasury.	Net gold in Treasury.	Available cash balance, including net gold.	Legal-tender notes redeemed in gold.	Imports of gold.	Exports of gold.
1897—January.....	\$24,316,964	\$30,239,389	a 45,952,395	\$48,509,678	\$144,800,493	\$215,362,421	\$946,068	\$556,621	\$371,944
February.....	24,400,997	28,796,037	a 4,365,060	41,425,059	146,661,506	212,637,250	924,124	544,700	358,697
March.....	36,217,662	27,312,967	9,004,664	50,583,846	151,786,464	222,045,006	1,249,329	884,166	572,068
April.....	37,812,135	32,072,097	5,740,038	53,480,533	153,340,890	228,040,517	7,502,008	619,452	6,629,406
May.....	29,797,391	29,109,259	688,132	61,188,187	144,319,563	230,113,813	8,862,000	661,666	9,467,211
June.....	36,584,708	22,934,065	13,650,613	67,929,521	140,790,793	240,137,627	7,113,445	660,343	7,625,678
Total for 12 months.....	347,721,705	365,774,160	a 18,062,455	.....	.....	.....	78,201,914	81,411,533	40,114,722
July.....	39,027,364	50,100,909	a 11,073,545	64,306,457	140,817,099	233,016,457	5,275,143	592,197	5,460,119
August.....	19,023,615	32,588,047	a 14,564,432	58,500,670	144,216,377	218,561,207	8,116,276	4,376,396	1,963,968
September.....	21,933,098	25,868,816	a 3,435,718	63,578,689	147,063,105	215,192,787	2,742,173	4,299,423	1,142,922
October.....	34,391,415	33,701,512	a 9,310,097	44,932,343	153,573,147	207,756,100	2,096,301	11,351,766	811,671
November.....	43,393,665	37,910,539	5,652,766	38,974,898	157,363,951	220,663,560	2,110,416	2,545,018	699,340
December.....	59,646,698	27,634,092	32,012,606	43,799,433	160,911,547	235,474,769	2,019,399	2,110,013	573,538
1898—January.....	37,333,628	36,696,711	636,917	28,617,220	164,286,793	223,871,766	1,209,916	5,716,776	2,606,196
February.....	28,572,358	26,996,268	1,576,102	40,291,690	167,623,182	225,564,204	1,636,813	5,399,109	1,090,413
March.....	32,956,751	31,982,444	1,076,307	45,351,277	174,584,136	226,166,944	1,588,770	30,214,745	1,668,884
April.....	83,012,943	44,314,062	a 11,801,119	34,820,008	181,238,137	215,810,622	1,156,997	32,845,193	1,373,624
May.....	80,074,818	47,846,909	a 17,775,091	31,662,454	171,818,065	195,754,815	1,548,997	13,118,694	1,109,157
June.....	33,506,313	47,852,283	a 14,342,969	36,605,887	167,004,410	206,657,571	903,852	8,184,774	876,529
Total for 12 months.....	405,821,335	448,366,563	a 38,047,246	.....	.....	.....	24,397,963	115,173,988	15,324,929

c Excess of expenditures.

NOTE.—The revenues and expenditures by months are made up from partial reports, and, being subject to change by subsequent concentration of accounts, do not agree with the totals by years. The latter are the actual results, as shown by complete returns.

REPORT OF THE SECRETARY OF THE TREASURY. 167

TABLE J.—STATEMENT OF THE NET DISBURSEMENTS (BY WARRANTS) DURING THE FISCAL YEAR ENDED JUNE 30, 1898.

CIVIL.		
Congress.....	\$4,498,132.44	
Executive.....	11,405,648.21	
Judiciary.....	6,760,165.33	
Government in the Territories.....	92,591.56	
Subtreasuries.....	436,503.37	
Public land offices.....	621,022.87	
Mints and assay offices.....	296,744.06	
		\$24,020,808.83
FOREIGN INTERCOURSE.		
Diplomatic salaries.....	371,077.85	
Consular salaries.....	667,474.09	
Contingent expenses of foreign missions.....	139,845.07	
Contingencies of consulates.....	197,765.40	
Spanish indemnity.....	28,500.00	
Relief, protection, and rescuing shipwrecked American seamen.....	25,403.44	
Survey and examination of the Nicaragua Canal.....	170,757.96	
International Union of American Republics.....	60,972.00	
Pay of consular officers for services to American vessels and seamen.....	18,956.03	
Emergencies arising in the diplomatic and consular service.....	43,281.26	
Scientific investigation of the fur-seal fisheries.....	24,539.58	
Miscellaneous trust funds.....	71,847.43	
Commission on damages and payment of awards, Bering Sea.....	483,151.26	
Miscellaneous items.....	172,909.12	
		2,485,581.13
MISCELLANEOUS.		
Public printing and binding.....	3,823,478.04	
Building, Government Printing Office.....	71,181.44	
Building, Library of Congress.....	25,000.00	
Payment of judgments, Court of Claims.....	1,060,836.39	
Contingent expenses, independent treasury.....	167,132.29	
Mint establishment.....	891,428.13	
Assessing and collecting internal revenue.....	3,615,685.85	
Paper for internal-revenue stamps.....	37,122.39	
Redemption of internal-revenue stamps.....	78,569.10	
Punishing violations of internal-revenue laws.....	52,448.71	
Refunds, reliefs, etc., under internal-revenue laws.....	11,060.28	
Allowance or drawback under internal-revenue laws.....	8,867.12	
Bounty on sugar.....	1,098,737.70	
Collecting revenue from customs:		
For the year 1898.....	\$6,944,905.45	
For prior years.....	207,371.13	
Detection and prevention of frauds upon the customs revenue.....	83,014.45	
		7,235,291.03
Repayment to importers excess of deposits.....	1,969,577.60	
Drawbacks and drawbacks under customs laws.....	2,923,837.81	
Revenue-Cutter Service.....	1,060,478.04	
Life-Saving Service.....	1,587,740.00	
Marine-Hospital Establishment.....	709,248.04	
Light-House Establishment.....	3,331,256.37	
Expenses of regulating immigration.....	210,791.49	
Salaries, shipping service.....	59,344.70	
Services to American vessels.....	21,944.06	
Supplies for native inhabitants of Alaska.....	26,372.56	
Enforcement of alien contract-labor laws.....	85,841.15	
Enforcement of Chinese exclusion act.....	82,460.61	
Revenue vessels.....	430,199.85	
Engraving and printing.....	1,129,261.93	
Coast and Geodetic Survey.....	478,007.84	
Steamboat-Inspection Service.....	340,009.04	
Custom-houses, post-offices, court-houses, etc.....	3,760,684.87	
Pay of assistant custodians and janitors of public buildings.....	928,999.40	
Fuel, lights, and water for public buildings.....	881,331.38	
Furniture and heating apparatus for public buildings.....	300,953.76	
Vaults, safes, locks, and plans for public buildings.....	38,109.01	
Distinctive paper for United States securities.....	85,648.00	
Expenses of Treasury notes.....	230,229.61	
Transportation and recoining of coin.....	409,209.14	
Preventing the spread of epidemic diseases.....	215,278.94	
Suppressing counterfeiting and other crimes.....	74,854.09	
Interstate Commerce Commission.....	241,253.15	
Expenses under Smithsonian Institution.....	127,968.27	
National Museum.....	221,051.67	
National Zoological Park.....	54,862.21	
Fish Commission, general expenses.....	465,070.66	
Trans-Mississippi and International Exposition at Omaha.....	114,132.29	
Tennessee Centennial Exposition at Nashville.....	49,947.42	
Expenses, loan of 1896.....	50,000.00	
Staking fund, Union Pacific Railroad.....	4,548,398.26	

168 REPORT OF THE SECRETARY OF THE TREASURY.

TABLE J.—STATEMENT OF THE NET DISBURSEMENTS (BY WARRANTS) DURING THE FISCAL YEAR ENDED JUNE 30, 1898—Continued.

MISCELLANEOUS—Continued.	
District of Columbia:	
General expenses.....	\$5,951,155.48
Water department, payable from the water fund....	211,580.85
Special trust funds.....	156,989.51
Buildings and grounds in Washington under Chief Engineer.....	\$6,319,725.84
Fuel, lights, etc., State, War, and Navy Department building.....	145,804.89
Care, maintenance, etc., of Washington Monument.....	37,499.26
Pedestal for statue of Gen. John A. Logan.....	11,292.18
Support and treatment of destitute patients.....	31,500.00
Payment on account of Ford's Theater disaster.....	18,999.96
Prevention of deposits in New York Harbor.....	34,805.00
Photolithographing for the Patent Office.....	56,116.45
Official Gazette, Patent Office.....	67,960.78
Surveying public lands.....	121,893.67
Resurveying Chickasaw lands.....	196,261.06
Surveying lands in the Indian Territory.....	117,500.00
Surveying forest reserves.....	111,496.69
Contingent expenses of land offices.....	125,093.57
Geological Survey.....	122,071.62
Geological maps of the United States.....	440,004.96
Surveying within land grants.....	62,915.52
Protecting public lands, timber, etc.....	41,761.83
Repayment for lands erroneously sold.....	82,306.98
Deposits by individuals for surveying public lands.....	26,496.21
Hot Springs Reservation, Arkansas.....	96,649.18
Classification of certain mineral lands in Montana and Idaho.....	19,074.75
Five, three, and two per cent funds to States.....	35,098.10
Government Hospital for the Insane.....	24,564.16
Columbia Institution for the Deaf and Dumb.....	342,066.47
Howard University.....	58,265.00
Garfield Hospital.....	32,600.00
Capitol building and grounds.....	19,000.00
Interior Department building.....	114,680.01
Colleges for agriculture and the mechanic arts.....	6,999.98
Deficiency in the postal revenues.....	1,104,000.00
Mail transportation, Pacific railroads.....	10,504,040.42
Department of Agriculture.....	867,797.45
Weather Bureau.....	2,354,100.72
Miscellaneous items.....	839,207.16
	\$70,014,115.22

INTERIOR DEPARTMENT.

Indians.....	\$10,994,667.70
Pensions.....	147,452,366.61
	158,447,036.31

MILITARY ESTABLISHMENT.

National Defense.....	7,084,112.80
Pay Department.....	21,003,831.33
Pay Department, bounty and miscellaneous.....	439,258.86
Commissary Department.....	5,922,441.36
Quartermaster's Department.....	18,613,118.37
National cemeteries, roads, etc.....	218,732.19
Medical Department.....	820,671.18
Artificial limbs.....	173,616.16
Ordnance Department.....	2,537,063.52
Armories and arsenals.....	435,601.77
Armament of fortifications.....	4,421,512.83
Gun and mortar batteries.....	2,892,506.53
Military Academy.....	280,085.70
Fortifications, etc.....	774,589.07
Improving rivers and harbors.....	20,785,049.96
Contingencies of the Army.....	87,897.11
Contingencies of the Army, Philippine expedition.....	100,000.00
Expeditionary force to Cuba.....	500,034.00
Signal Service of the Army.....	85,136.57
Construction of military posts, roads, etc.....	422,876.22
Publication of Official Records of the War of the Rebellion.....	153,124.71
Support of Soldiers' Home.....	107,612.49
Soldiers' Home, permanent fund and interest account.....	210,715.55
Support of National Homes for Disabled Volunteer Soldiers.....	2,300,698.73
Chickamauga and Chattanooga National Park.....	85,170.27
Shiloh National Park.....	31,246.12
Yellowstone National Park.....	29,981.98
Gettysburg National Park.....	50,222.72
Reliefs and reimbursements.....	609,106.11
Miscellaneous items.....	66,411.58
	\$1,992,000.29

TABLE J.—STATEMENT OF THE NET DISBURSEMENTS (BY WARRANTS) DURING THE FISCAL YEAR ENDED JUNE 30, 1898—Continued.

NAVAL ESTABLISHMENT.

National Defense	\$20,622,415.20	
Pay, etc., of the Navy	8,691,667.13	
Pay, miscellaneous	375,890.94	
Deposit fund	172,943.19	
Contingent, Navy	3,070.65	
Marine Corps	1,174,974.32	
Naval Academy	223,485.32	
Navigation	174,406.11	
Ordnance	1,652,784.44	
Equipment	1,843,121.78	
Yards and Docks	1,774,571.02	
Medicine and Surgery	300,661.05	
Supplies and Accounts	3,349,543.07	
Construction and Repair	3,008,220.42	
Steam Engineering	1,490,417.36	
Increase of the Navy	10,753,388.73	
Navy transportation, Pacific railroads	10,859.59	
General account of advances	2,258,701.75	
Vessels for auxiliary naval force	352,010.00	
Relief of sufferers by destruction of the U. S. S. <i>Maine</i>	83,358.19	
Miscellaneous items and reliefs	501,494.54	
		\$58,823,984.80
Interest on the public debt		37,585,066.23
Total net ordinary expenditures		443,868,582.80
Redemption of the public debt		384,219,542.00
Total expenditures		827,588,124.80
Balance in the Treasury June 30, 1898		775,751,368.11
Grand total		1,603,339,492.91

TABLE K.—STATEMENT OF RECEIPTS OF THE UNITED STATES FROM MARCH 4, 1789,
30) FROM

Year.	Balance in the Treasury at commencement of year.	Customs.	Internal revenue.	Direct tax.	Public lands.	Miscellaneous.
1791		\$4,899,478.09				\$10,478.10
1792	\$973,005.75	3,443,070.85	\$208,942.81			9,918.65
1793	783,444.51	4,255,306.56	337,705.70			21,410.88
1794	753,661.69	4,801,085.28	274,089.62			53,277.97
1795	1,151,924.17	5,588,461.26	337,755.36			28,217.97
1796	516,442.61	6,587,987.94	475,289.60		\$4,836.13	1,109,415.96
1797	888,995.42	7,549,649.65	575,491.45		83,540.60	299,139.29
1798	1,021,899.04	7,106,061.93	644,357.95		11,963.11	58,192.81
1799	617,451.43	6,610,449.31	779,136.44			86,187.56
1800	2,161,867.77	9,080,932.73	809,396.55	\$734,223.97	443.75	152,712.10
1801	2,623,311.99	10,750,778.93	1,048,033.43	534,343.38	167,726.06	245,649.15
1802	3,296,391.00	12,438,235.74	621,898.89	206,565.44	188,628.02	1,500,505.96
1803	5,020,067.64	10,479,417.61	215,179.69	71,879.20	165,675.69	131,945.44
1804	4,825,811.60	11,098,565.33	50,941.29	50,198.44	487,526.79	139,075.53
1805	4,037,005.26	12,936,487.04	21,747.15	21,862.91	540,193.80	40,382.30
1806	3,999,388.99	14,607,098.17	20,101.45	55,763.86	765,245.73	51,121.96
1807	4,538,123.80	15,845,521.61	13,051.40	34,732.56	466,163.27	38,550.42
1808	9,643,850.07	16,363,550.58	8,190.23	19,159.21	647,939.06	21,822.85
1809	9,941,809.96	7,257,506.62	4,034.29	7,517.81	442,252.33	62,162.57
1810	3,848,056.78	8,583,309.31	7,430.63	12,448.68	696,548.82	84,476.84
1811	2,672,276.57	13,813,222.73	2,296.95	7,666.66	1,040,237.58	50,211.22
1812	3,502,305.60	8,958,777.53	4,903.06	8,559.22	710,427.78	126,165.17
1813	3,862,217.41	13,224,623.25	4,755.04	3,805.52	835,655.14	271,671.00
1814	5,196,542.00	5,998,772.08	1,662,984.82	2,219,497.36	1,135,971.09	164,399.81
1815	1,727,848.63	7,282,942.22	4,678,059.07	2,162,673.41	1,287,959.28	285,282.84
1816	13,106,592.88	36,306,874.88	5,124,708.31	4,253,635.09	1,717,965.03	273,782.35
1817	22,033,519.19	26,283,348.49	2,678,100.77	1,834,167.04	1,991,226.06	109,781.08
1818	14,989,465.48	17,176,385.00	955,270.20	264,333.36	2,606,564.77	57,617.71
1819	1,478,526.74	20,283,006.76	229,593.63	83,650.78	3,274,422.78	57,098.42
1820	2,079,992.38	15,005,612.15	106,260.53	31,586.82	1,635,871.61	61,838.44
1821	1,198,461.21	13,004,447.15	69,027.63	29,349.05	1,212,966.46	152,589.43
1822	1,681,592.24	17,599,761.94	67,665.71	20,961.56	1,803,581.54	452,967.19
1823	4,237,427.55	19,098,433.44	34,242.17	10,337.71	916,523.10	141,129.84
1824	9,463,922.81	17,878,325.71	34,663.37	6,201.96	984,418.15	127,003.60
1825	1,646,597.13	20,098,713.45	25,771.35	2,330.85	1,216,090.56	130,451.81
1826	5,201,850.43	23,341,331.77	21,589.93	6,638.78	1,393,785.09	94,588.66
1827	6,858,686.18	19,712,283.29	19,885.68	2,626.90	1,495,845.26	1,815,722.63
1828	6,668,286.10	23,205,523.64	17,451.64	2,218.81	1,018,306.75	65,126.49
1829	5,972,435.81	22,681,965.91	14,502.74	11,335.05	1,517,175.13	112,648.55
1830	5,756,704.79	21,922,391.39	12,160.62	16,980.59	2,329,356.14	73,227.77
1831	6,014,539.75	24,224,441.77	6,983.51	10,506.01	3,210,815.48	584,124.05
1832	4,502,914.45	28,455,237.24	11,630.65	6,791.13	2,622,381.03	270,410.61
1833	2,011,777.55	29,032,508.91	2,759.00	394.12	3,967,682.55	470,096.67
1834	11,702,905.31	16,214,957.15	4,196.09	19.80	4,857,000.69	480,812.32
1835	6,892,858.42	19,391,310.59	10,459.48	4,263.33	14,787,000.75	759,972.13
1836	26,746,803.96	23,409,940.53	870.00	728.79	24,677,179.86	2,245,902.23
1837	46,708,436.00	11,169,290.39	5,493.84	1,687.70	6,776,236.52	7,001,444.59
1838	37,327,252.69	16,158,800.36	2,467.27		8,730,945.66	6,410,248.45
1839	36,891,196.94	23,137,924.81	2,553.32	755.22	7,361,576.40	979,939.86
1840	33,157,503.68	13,499,502.17	1,682.25		3,411,818.63	2,567,112.28
1841	29,963,163.46	14,487,216.74	3,261.36		1,365,627.42	1,004,054.75
1842	28,685,111.08	18,187,908.76	495.00		1,335,797.53	451,995.97
1843	30,521,979.44	7,046,843.91	103.25		898,158.18	285,895.92
1844	39,186,284.74	26,183,570.94	1,777.34		2,059,939.80	1,075,419.70
1845	36,742,629.62	27,528,112.70	8,517.12		2,077,022.30	361,453.68
1846	36,194,274.81	26,712,667.87	2,897.26		2,694,452.48	289,950.13
1847	38,261,956.65	23,747,864.66	875.00		2,498,355.20	230,806.30
1848	33,079,276.43	31,757,070.96	375.00		3,328,642.56	612,610.69
1849	29,416,612.45	28,346,738.82			1,688,959.55	685,379.13
1850	32,827,082.69	39,668,696.42			1,859,694.25	2,064,306.21
1851	35,871,758.31	49,017,567.92			2,852,305.90	1,185,106.11
1852	40,158,353.25	47,339,326.62			2,043,239.56	464,249.40
1853	43,338,880.02	56,931,865.52			1,667,064.99	998,081.17
1854	50,261,901.09	64,234,190.27			8,470,798.39	1,105,252.74
1855	48,591,078.41	53,025,794.21			11,497,049.07	827,781.40
1856	47,777,672.13	64,022,863.50			8,917,644.93	1,116,190.81
1857	49,108,229.80	63,875,905.05			8,829,496.64	1,259,930.88
1858	46,802,855.00	41,789,020.96			3,512,715.87	1,352,039.13
1859	35,113,334.22	49,565,824.38			1,756,687.30	1,454,596.24
1860	33,193,248.60	53,187,511.87			1,778,557.71	1,088,530.25
1861	32,979,530.78	39,582,125.64			870,658.54	1,023,518.31
1862	30,963,857.83	49,066,397.62		1,795,331.73	152,203.77	915,327.97
1863	46,956,304.87	90,059,642.40	37,640,787.95	1,486,103.61	167,617.17	3,741,794.38
1864	36,523,046.13	102,316,152.99	109,741,134.10	475,648.96	588,333.29	30,291,701.86
1865	154,433,738.44	84,928,260.60	208,464,215.25	1,200,573.03	996,553.31	25,441,556.00

a For the half year from

TO JUNE 30, 1898, BY CALENDAR YEARS TO 1843 AND BY FISCAL YEARS (ENDED JUNE THAT TIME).

Year.	Dividends.	Net ordinary receipts.	Interest.	Premiums.	Receipts from loans and Treasury notes.	Gross receipts.	Unavail-able.
1791		\$4,400,951.19			\$361,391.34	\$4,771,342.53	
1792	\$8,028.00	3,669,960.31			5,102,498.45	8,772,458.76	
1793	38,500.00	4,652,923.14			1,797,272.01	6,450,195.15	
1794	303,472.00	5,431,904.87			4,007,950.78	9,439,855.65	
1795	180,000.00	6,114,534.59	\$4,800.00		3,396,424.00	9,515,758.59	
1796	180,000.00	8,377,529.65	42,800.00		320,000.00	8,740,329.65	
1797	80,980.00	8,688,780.99			70,000.00	8,758,780.99	
1798	79,920.00	7,900,495.80	78,675.00		200,000.00	8,179,170.80	
1799	71,040.00	7,546,813.31			5,000,000.00	12,546,813.31	
1800	71,040.00	10,848,749.10			1,565,229.24	12,413,978.34	
1801	88,800.00	12,935,530.95	10,125.00			12,945,655.95	
1802	89,980.00	14,995,793.95				14,995,793.95	
1803		11,064,097.63				11,064,097.63	
1804		11,826,307.38				11,826,307.38	
1805		13,560,693.20				13,560,693.20	
1806		15,559,931.07				15,559,931.07	
1807		16,398,019.26				16,398,019.26	
1808		17,060,661.93				17,060,661.93	
1809		7,773,473.12				7,773,473.12	
1810		9,284,214.28			2,750,000.00	12,034,214.28	
1811		14,422,634.09				14,422,634.09	
1812		9,801,132.76			12,837,900.00	22,639,032.76	
1813		14,340,409.95	300.00		26,184,135.00	40,524,844.95	
1814		11,181,625.16	85.79		23,377,826.00	34,559,586.95	
1815		15,696,918.82	11,541.74	\$32,107.64	85,220,671.40	50,961,237.60	
1816		47,676,985.66	68,665.16	686.09	9,425,084.91	57,171,421.82	
1817	202,426.30	33,099,049.74	267,819.14		466,723.45	33,833,592.33	
1818	525,000.00	21,585,171.04	412.62		8,353.00	21,593,936.66	
1819	675,000.00	24,603,374.87			2,291.00	24,605,665.87	
1820	1,000,000.00	17,840,669.55		40,000.00	3,000,824.13	20,881,493.68	
1821	105,000.00	14,573,379.72			5,000,324.00	19,573,703.72	
1822	297,500.00	20,232,427.94				20,232,427.94	
1823	350,000.00	20,540,666.26				20,540,666.26	
1824	350,000.00	19,381,212.79			5,000,000.00	24,381,212.79	
1825	367,500.00	21,840,858.02			5,000,000.00	26,840,858.02	
1826	402,500.00	25,260,434.21				25,260,434.21	
1827	420,000.00	22,966,363.96				22,966,363.96	
1828	455,000.00	24,763,629.23				24,763,629.23	
1829	490,000.00	24,827,627.88				24,827,627.88	
1830	490,000.00	24,844,116.51				24,844,116.51	
1831	490,000.00	28,526,820.82				28,526,820.82	
1832	490,000.00	31,867,450.66				31,867,450.66	\$1,889.50
1833	474,965.00	33,948,426.25				33,948,426.25	
1834	284,349.50	21,791,935.55				21,791,935.55	
1835	506,480.82	35,430,067.10				35,430,067.10	
1836	292,674.67	50,826,796.08				50,826,796.08	
1837		24,954,153.04			2,962,989.15	27,917,142.19	63,288.35
1838		26,302,561.74			12,716,820.86	39,019,382.60	
1839		31,482,749.61			3,857,276.21	35,340,025.82	1,458,782.98
1840		19,480,115.33			5,589,547.51	25,069,662.84	87,469.25
1841		16,860,160.27			13,650,317.38	30,519,477.65	
1842		19,976,197.25			14,806,735.64	34,782,932.89	11,188.00
1843		8,231,001.26		71,700.83	12,479,708.86	20,782,410.45	
1844		29,320,707.78		666.60	1,677,181.35	31,198,555.73	
1845		29,970,105.80				29,970,105.80	28,251.90
1846		29,699,967.74				29,699,967.74	
1847		26,467,403.16		28,365.91	28,672,399.45	55,368,168.52	80,000.00
1848		35,628,699.21		87,080.00	21,256,700.00	56,992,479.21	
1849		30,721,077.50		487,065.48	28,588,750.00	59,796,892.98	
1850		43,592,888.88		10,550.00	4,045,950.00	47,649,388.88	
1851		52,555,039.33		4,264.92	203,400.00	52,762,704.25	
1852		49,846,815.60			46,300.00	49,893,115.60	
1853		61,587,031.68		22.50	16,350.00	61,603,404.18	103,301.87
1854		73,800,341.40			2,001.67	73,802,343.07	
1855		65,350,574.68			800.00	65,351,374.68	
1856		74,056,699.24			200.00	74,056,899.24	
1857		68,965,312.57			8,900.00	68,969,212.57	
1858		40,655,365.96			23,717,300.00	70,372,665.96	
1859		52,777,107.92		706,357.72	28,287,500.00	81,773,965.64	15,408.34
1860		56,054,599.83		10,008.00	20,776,800.00	76,841,407.83	
1861		41,476,299.49		33,630.90	41,861,709.74	83,371,640.18	
1862		51,919,261.09		68,400.00	529,692,460.50	581,680,121.59	11,110.81
1863		112,094,945.51		602,345.44	776,682,361.57	889,379,652.52	6,000.01
1864		243,412,971.20		21,174,101.01	1,128,873,946.36	1,393,461,017.57	9,210.40
1865		332,081,156.19		11,683,446.89	1,472,224,740.85	1,805,939,345.93	6,095.11

January 1 to June 30, 1843.

TABLE K.—STATEMENT OF THE RECEIPTS OF THE UNITED

Year.	Balance in the Treasury at commencement of year.	Customs.	Internal revenue.	Direct tax.	Public lands.	Miscellaneous.
1866	\$33,933,657.89	\$179,046,651.58	\$309,236,813.42	\$1,974,754.12	\$965,031.03	\$29,036,314.23
1867	160,817,069.73	176,417,810.88	266,027,587.48	4,200,233.70	1,163,575.76	15,037,522.15
1868	196,076,437.09	164,464,569.56	191,067,589.41	1,788,145.85	1,348,715.41	17,745,403.50
1869	158,936,082.87	180,046,426.63	158,356,460.86	765,685.61	4,020,344.34	13,967,338.65
1870	183,781,965.76	194,538,374.44	184,899,756.49	229,102.88	3,350,461.76	12,942,118.30
1871	177,604,116.51	206,270,408.05	143,096,153.63	590,355.37	2,388,646.68	22,063,541.21
1872	188,019,122.15	216,370,286.77	130,642,177.72	.....	2,576,714.19	15,106,051.23
1873	134,666,001.85	188,089,522.70	113,729,314.14	315,254.51	8,882,312.38	17,161,270.06
1874	150,293,673.41	163,103,833.69	102,409,784.90	.....	1,852,428.93	32,575,043.32
1875	178,833,339.54	157,167,722.35	110,007,493.58	.....	1,413,640.17	15,431,915.31
1876	172,804,061.32	148,071,984.61	116,700,732.03	93,796.80	1,129,466.95	24,070,602.31
1877	149,909,377.21	130,956,493.07	118,630,407.83	.....	976,253.68	30,437,487.42
1878	214,887,645.98	130,170,680.20	110,581,624.74	.....	1,079,743.37	15,614,728.09
1879	286,591,453.88	137,250,047.70	113,561,610.58	.....	924,781.06	20,565,697.49
1880	386,832,588.65	186,522,064.60	124,009,373.92	30.85	1,016,506.00	21,978,525.01
1881	231,940,064.44	198,159,676.02	135,264,385.51	1,516.89	2,201,863.17	25,154,850.98
1882	280,607,668.37	220,410,730.25	146,497,595.45	160,141.69	4,763,140.37	31,703,642.52
1883	275,450,903.53	214,706,496.93	144,720,368.98	108,156.60	7,965,864.42	30,796,695.02
1884	374,189,081.98	195,067,489.76	121,586,072.51	70,720.75	9,810,705.01	21,964,881.89
1885	424,941,403.07	181,471,839.34	112,498,725.54	.....	5,705,966.44	24,014,065.06
1886	521,794,026.26	192,905,023.44	116,805,936.48	108,239.94	5,630,999.34	20,969,537.86
1887	526,848,755.46	217,286,893.13	118,823,391.22	32,892.05	9,254,286.42	26,006,814.84
1888	512,851,434.36	219,091,173.63	124,296,871.98	1,566.82	11,202,017.28	24,674,446.10
1889	659,449,099.94	223,832,741.69	130,881,513.92	.....	8,038,651.79	24,297,161.44
1890	673,399,118.18	229,668,584.57	142,606,705.81	.....	6,358,272.51	24,447,419.74
1891	691,527,403.76	219,522,205.23	145,688,249.44	.....	4,029,535.41	23,374,457.23
1892	726,232,332.60	177,452,964.15	153,971,072.57	.....	3,261,875.58	20,251,871.94
1893	778,604,339.28	203,355,016.73	161,027,623.93	.....	3,182,089.78	18,254,896.34
1894	788,467,555.07	121,818,530.62	147,111,232.81	.....	1,673,637.30	17,118,618.52
1895	763,565,540.75	152,158,617.45	143,421,672.02	.....	1,103,347.16	16,706,438.48
1896	773,610,008.76	160,021,751.67	146,762,864.74	.....	1,005,523.43	19,186,060.54
1897	846,063,349.62	176,554,126.65	146,688,574.29	.....	864,581.41	23,614,422.81
1898	884,790,237.71	149,575,062.35	170,900,641.49	.....	1,243,139.42	83,602,501.94
.....	.....	7,902,022,450.01	5,181,644,479.46	28,131,990.32	292,839,835.60	889,606,115.27

a Amount heretofore credited to the Treasurer as

REPORT OF THE SECRETARY OF THE TREASURY.

173

STATES FROM MARCH 4, 1789, TO JUNE 30, 1898, ETC.—Continued.

Year.	Dividends.	Net ordinary receipts.	Interest.	Premiums.	Receipts from loans and Treasury notes.	Gross receipts.	Unavailable.
1886		\$519,940,564.38		\$38,083,055.68	\$712,851,553.05	\$1,270,884,173.11	\$172,004.29
1887		462,846,679.92		27,787,330.35	640,426,910.29	1,131,000,920.56	721,837.98
							2,675,918.19
1888		376,434,453.82		29,203,629.50	625,111,433.20	1,080,749,516.52	
1889		357,188,256.09		13,755,491.12	238,678,081.06	809,621,828.27	a 2,070.73
1890		395,959,833.87		15,295,643.76	285,474,496.00	896,729,973.63	
1891		374,431,104.94		8,892,839.95	268,768,523.47	852,092,468.36	a 3,306.18
1892		364,694,229.91		9,412,637.65	305,047,054.00	879,153,921.56	a 18,228.35
1893		322,177,673.78		11,580,530.89	214,931,017.00	548,669,221.67	a 3,047.80
1894		299,941,090.84		5,037,665.22	439,272,535.46	744,251,291.52	12,691.40
1895		284,020,771.41		3,979,279.69	387,971,556.00	675,971,607.10	
1896		290,066,584.70		4,029,280.58	397,455,808.00	691,551,673.28	
1897		261,000,642.00		405,776.58	848,871,749.00	630,278,167.58	
1898		257,446,776.40		317,102.30	404,581,201.00	662,345,079.70	
1899		272,322,136.83		1,505,047.63	792,807,643.00	1,066,634,827.46	
1900		333,526,500.98		110.00	211,814,103.00	545,340,713.98	
1901		360,782,292.57			113,750,534.00	474,532,826.57	
1902		403,525,250.28			120,945,724.00	524,470,974.28	
1903		398,287,581.95			555,942,564.00	954,230,145.95	
1904		348,519,869.92			206,877,896.00	555,397,755.92	a 1,500.00
1905		323,690,706.38			245,196,303.00	568,887,009.38	47,097.65
1906		356,439,727.06			116,314,850.00	452,754,577.06	
1907		371,403,277.66			154,440,900.00	525,844,177.66	7,997.64
1908		379,266,074.76			285,016,650.00	664,282,724.76	
1909		367,050,058.84			245,111,250.00	632,161,408.84	
1910		403,080,982.63			245,293,650.00	648,374,632.63	
1911		362,612,447.31			373,208,857.75	765,821,305.06	a 731.11
1912		354,937,784.24			381,463,512.00	736,401,296.24	
1913		365,819,628.78			347,051,586.00	732,871,214.78	
1914		297,722,019.25		8,633,295.71	417,651,223.50	724,006,538.46	
1915		313,390,075.11		11,339,344.62	395,787,205.50	720,516,625.23	
1916		320,970,200.38		11,166,246.41	482,710,363.50	820,852,810.29	
1917		347,721,705.16			389,930,220.00	737,651,925.16	
1918		405,321,335.20			333,227,920.00	738,549,255.20	
	\$9,720,136.29	14,303,964,996.95	\$485,224.45	235,398,107.57	16,007,215,007.09	30,547,063,336.06	2,714,730.71

unavailable and since recovered and charged to his account.

TABLE L.—STATEMENT OF EXPENDITURES OF THE UNITED STATES FROM MARCH 4, JUNE 30) FROM

Year.	War.	Navy.	Indians.	Pensions.	Miscellaneous.
1791	\$633,804.03		\$27,000.00	\$175,813.88	\$1,063,971.61
1792	1,100,702.09		13,648.85	109,243.15	4,672,064.38
1793	1,130,249.08		27,282.83	80,087.81	511,451.01
1794	2,639,097.59	\$61,408.97	13,042.46	81,399.24	750,350.74
1795	2,490,910.13	410,562.03	23,475.68	68,673.22	1,378,920.66
1796	1,280,263.84	274,784.04	113,563.98	100,843.71	801,847.58
1797	1,039,402.46	382,631.89	62,398.58	92,256.97	1,250,422.63
1798	2,009,522.30	1,381,347.76	16,470.09	104,845.33	1,139,524.94
1799	2,466,946.98	2,858,081.84	20,302.19	95,444.03	1,039,391.68
1800	2,580,878.77	3,448,716.08	31.22	64,130.73	1,237,613.22
1801	1,672,944.08	2,111,424.00	9,000.00	73,533.37	1,114,768.45
1802	1,179,148.26	915,561.87	94,000.00	85,440.39	1,462,929.40
1803	822,055.85	1,215,230.53	60,000.00	62,902.10	1,842,635.76
1804	875,423.93	1,189,832.75	116,500.00	80,092.80	2,191,009.43
1805	712,781.28	1,597,500.00	196,500.00	81,854.59	3,768,598.75
1806	1,224,355.38	1,649,641.44	234,280.00	81,875.53	2,890,137.01
1807	1,288,685.91	1,722,064.47	205,425.00	70,500.00	1,697,897.51
1808	2,900,834.40	1,884,067.80	213,575.00	82,576.04	1,423,285.61
1809	3,345,772.17	2,427,758.80	387,503.84	87,833.54	1,215,803.79
1810	2,294,323.94	1,654,244.20	177,025.00	83,744.16	1,101,144.96
1811	2,032,828.19	1,965,566.39	151,875.00	75,043.88	1,367,291.40
1812	11,817,798.24	3,959,365.15	277,845.00	91,402.10	1,663,068.21
1813	19,652,013.02	6,446,600.10	167,358.28	86,989.91	1,720,435.61
1814	20,350,806.86	7,311,290.60	167,394.86	90,164.36	2,308,029.70
1815	14,794,294.22	8,660,000.25	530,750.00	69,656.06	2,898,870.47
1816	16,012,066.80	3,908,278.30	274,512.16	188,804.15	2,969,741.17
1817	8,004,236.53	3,314,598.49	319,463.71	297,374.43	3,518,936.76
1818	5,622,715.10	2,953,695.00	505,704.27	890,719.90	3,835,839.51
1819	6,506,300.37	3,847,640.42	463,181.39	2,415,939.85	3,067,211.41
1820	2,630,392.31	4,387,990.00	215,750.01	3,208,376.31	2,592,021.94
1821	4,461,291.78	3,319,243.06	477,005.44	242,817.25	2,223,121.54
1822	8,111,981.48	2,224,458.98	575,007.41	1,948,196.40	1,667,966.24
1823	3,096,924.43	2,503,765.83	380,781.82	1,780,588.52	2,022,098.99
1824	3,340,939.85	2,904,581.56	426,987.90	1,499,326.59	7,155,306.81
1825	3,659,914.18	3,049,083.86	724,106.44	1,306,810.57	2,748,544.29
1826	3,943,194.37	4,218,902.45	743,447.83	1,556,593.83	2,600,177.79
1827	3,948,977.68	4,263,877.45	750,624.88	976,136.86	2,713,476.58
1828	4,145,544.56	3,918,786.44	705,084.24	850,573.57	2,676,052.64
1829	4,724,291.07	3,308,745.47	576,344.74	949,594.47	3,062,234.65
1830	4,767,128.88	3,239,428.63	622,262.47	1,363,297.31	3,237,416.04
1831	4,841,835.55	3,856,183.07	930,738.04	1,170,665.14	3,064,646.10
1832	5,446,034.88	3,956,370.29	1,352,419.75	1,184,422.40	4,577,141.45
1833	6,704,019.10	3,901,356.75	1,802,980.93	4,589,152.40	5,716,245.93
1834	5,696,189.38	3,956,260.42	1,003,953.20	3,364,285.30	4,404,728.95
1835	5,759,156.89	3,864,939.06	1,706,444.48	1,954,711.32	4,239,690.53
1836	11,747,245.25	5,807,718.23	5,037,022.88	2,882,797.96	5,393,279.72
1837	12,682,730.80	6,646,914.53	4,348,036.19	2,672,162.45	9,898,370.27
1838	12,897,224.16	6,181,580.53	5,504,191.34	2,156,057.29	7,160,664.76
1839	8,916,995.80	6,182,294.25	2,528,917.28	3,142,750.51	5,723,990.89
1840	7,095,267.23	6,113,896.89	2,331,794.86	2,603,562.17	5,995,398.96
1841	6,801,610.24	6,001,076.97	2,514,837.12	2,388,434.51	6,490,881.45
1842	6,610,438.02	8,397,242.95	1,199,099.68	1,378,931.33	6,773,624.61
1843	2,908,671.95	3,727,711.53	578,371.00	839,041.12	3,202,713.00
1844	5,218,183.66	6,498,199.11	1,256,532.39	2,082,008.99	5,645,163.66
1845	5,746,291.28	6,297,177.89	1,539,351.35	2,400,788.11	5,911,760.96
1846	10,413,370.58	6,455,013.92	1,027,693.64	1,811,097.56	6,711,283.89
1847	35,840,030.33	7,900,635.76	1,430,411.30	1,744,888.63	6,885,008.35
1848	27,688,334.21	9,408,476.02	1,252,296.81	1,227,496.48	5,650,851.25
1849	14,558,473.26	9,788,705.92	1,374,161.55	1,328,867.64	12,885,334.24
1850	9,687,024.58	7,904,724.66	1,663,591.47	1,866,886.02	16,043,763.36
1851	12,161,965.11	8,880,581.38	2,829,801.77	2,293,377.22	17,888,992.18
1852	8,521,506.19	8,918,842.10	3,043,576.04	2,401,858.78	17,504,171.45
1853	9,910,498.49	11,067,789.53	3,880,494.12	1,756,306.20	17,463,068.01
1854	11,722,282.87	10,790,096.32	1,550,339.55	1,232,665.00	26,672,144.68
1855	14,648,074.07	13,327,095.11	2,772,990.78	1,477,612.33	24,090,425.43
1856	16,983,160.51	14,074,884.64	2,644,263.97	1,206,229.65	31,794,038.87
1857	19,159,150.87	12,651,694.61	4,354,416.87	1,310,380.58	28,585,496.77
1858	25,679,121.63	14,053,264.64	4,978,266.18	1,219,768.30	28,400,016.42
1859	23,154,720.53	14,890,927.90	3,490,534.53	1,222,222.71	23,797,544.46
1860	16,472,202.72	11,514,649.83	2,991,121.54	1,100,802.32	27,077,978.36
1861	23,001,530.67	12,387,156.52	2,865,481.17	1,034,596.73	23,527,287.69
1862	389,175,562.29	42,640,353.09	2,327,948.37	852,170.47	21,886,962.59
1863	603,314,411.62	63,261,235.31	3,152,032.70	1,078,513.36	23,196,383.37
1864	690,391,048.66	85,704,963.74	2,629,975.97	4,985,478.90	27,572,216.87

a For the half year from

REPORT OF THE SECRETARY OF THE TREASURY.

175

1789, TO JUNE 30, 1898, BY CALENDAR YEARS TO 1843 AND BY FISCAL YEARS (ENDED THAT TIME.

Year.	Net ordinary expenditures.	Premiums.	Interest.	Public debt.	Gross expenditures.	Balance in Treasury at the end of the year
1789	\$1,919,589.52		\$1,177,963.08	\$990,984.23	\$3,797,436.78	\$973,905.75
1792	5,896,258.47		2,378,611.28	693,050.25	8,962,920.00	783,444.51
1793	1,749,070.73		2,097,859.17	2,633,048.07	6,479,977.97	753,661.69
1794	3,545,299.00		2,752,523.04	2,743,771.18	9,041,593.17	1,151,924.17
1795	4,362,541.72		2,947,059.06	2,841,639.37	10,151,240.15	516,442.61
1796	2,551,303.15		3,239,347.68	2,577,126.01	8,367,776.84	888,965.42
1797	2,836,110.53		3,172,516.73	2,617,250.12	8,625,877.37	1,021,899.04
1798	4,651,710.43		2,955,875.90	976,032.09	8,583,618.41	617,451.43
1799	6,480,166.72		2,815,651.41	1,706,578.84	11,002,396.97	2,161,867.77
1800	7,411,369.97		3,402,601.04	1,138,563.11	11,952,534.12	2,623,311.99
1801	4,981,609.90		4,411,830.06	2,879,876.98	12,273,376.94	3,295,391.00
1802	2,737,079.91		4,239,172.16	5,294,235.24	13,270,487.31	5,020,697.64
1803	4,002,824.24		3,949,462.36	3,306,697.07	11,258,983.67	4,825,811.60
1804	4,452,858.91		4,185,048.74	3,977,206.07	12,615,113.72	4,037,005.26
1805	6,257,234.62		2,657,114.22	4,583,980.63	13,598,309.47	3,999,388.99
1806	6,080,209.36		3,368,968.28	5,572,018.64	15,021,196.26	4,538,123.80
1807	4,984,572.89		3,369,578.48	2,938,141.62	11,292,292.99	9,643,850.07
1808	6,504,338.85		2,557,074.23	7,701,288.96	16,762,702.04	9,941,809.96
1809	7,414,072.14		2,866,074.90	3,586,479.26	13,867,226.30	3,848,056.78
1810	5,311,082.28		3,163,671.09	4,835,241.12	13,309,994.49	2,672,276.57
1811	5,582,604.86		2,585,485.57	5,414,564.43	13,592,604.86	3,502,305.80
1812	17,829,486.70		2,451,272.57	1,998,349.88	22,279,121.15	3,862,217.41
1813	28,062,396.92		3,599,455.22	7,508,668.22	39,190,520.36	5,196,542.00
1814	30,127,686.38		4,593,239.04	3,307,804.90	38,028,230.32	1,727,848.63
1815	26,958,571.00		5,990,090.24	6,638,832.11	39,582,493.35	13,106,592.88
1816	22,373,432.58		7,822,923.34	17,048,139.59	48,244,495.51	22,033,519.19
1817	15,454,809.92		4,536,282.55	20,886,753.57	40,877,646.04	14,989,465.48
1818	13,806,073.78		6,209,954.03	15,086,247.59	35,104,875.40	1,478,526.74
1819	16,300,273.44		5,211,730.56	2,492,196.73	24,004,199.73	2,079,992.38
1820	13,134,530.57		5,151,004.32	3,477,489.96	21,763,024.85	1,198,461.21
1821	10,723,479.07		5,126,073.79	3,241,019.83	19,090,572.69	1,681,592.24
1822	9,837,643.51		5,172,788.79	2,676,160.33	17,676,592.63	4,237,427.55
1823	9,784,154.59		4,922,475.40	607,541.01	15,314,171.00	9,463,922.81
1824	15,330,144.71		4,943,557.93	11,624,835.83	31,898,538.47	1,946,597.18
1825	11,490,459.94		4,306,757.40	7,728,587.38	23,585,804.72	5,201,650.43
1826	13,062,316.27		3,975,542.95	7,065,539.24	24,103,398.46	6,358,686.18
1827	12,653,085.65		3,486,071.51	6,517,596.86	22,666,764.04	6,668,286.10
1828	13,296,041.45		3,098,800.60	9,064,637.47	25,459,479.52	5,972,435.81
1829	12,641,210.40		2,542,843.23	9,880,304.77	25,044,358.40	5,755,704.79
1830	13,229,532.33		1,912,574.98	9,443,178.29	24,585,281.55	6,014,589.75
1831	12,864,067.90		1,373,748.74	14,800,629.48	30,038,446.12	4,502,914.45
1832	16,516,388.77		772,561.50	17,097,747.79	34,356,698.06	2,011,777.55
1833	22,713,755.11		303,796.87	1,239,746.51	24,257,298.49	11,702,905.81
1834	18,436,417.25		202,152.98	5,974,412.21	24,601,982.44	8,892,858.42
1835	17,514,950.28		67,863.08	828.20	17,573,141.56	26,749,803.96
1836	20,968,164.04				30,868,164.04	46,708,436.00
1837	27,243,214.24			21,822.91	37,285,037.15	87,327,252.69
1838	32,849,718.08		14,996.48	5,590,723.79	39,455,438.35	36,891,196.94
1839	26,496,948.73		899,833.89	10,718,153.53	37,614,936.15	33,157,503.68
1840	24,129,920.11		174,598.08	3,912,015.62	28,226,533.81	29,963,163.46
1841	26,196,840.29		284,977.55	5,315,712.19	31,797,530.03	28,685,111.08
1842	24,361,336.59		773,549.85	7,801,990.09	32,938,876.53	30,521,979.44
1843	11,256,508.90		523,583.91	338,012.64	12,118,105.15	39,186,284.74
1844	20,650,108.01		1,833,452.13	11,158,450.71	33,642,010.85	36,742,829.62
1845	21,895,369.61	\$18,231.43	1,040,458.18	7,536,349.49	30,490,408.71	36,194,274.81
1846	26,418,459.56		842,723.27	871,100.04	27,632,282.90	38,261,959.65
1847	53,801,569.37		1,119,214.72	5,600,067.65	60,520,851.74	33,079,276.43
1848	45,237,454.77		2,390,765.88	13,036,922.54	60,655,143.19	29,416,612.45
1849	29,923,542.61	82,866.81	3,565,535.78	12,804,478.54	56,398,422.74	82,827,082.00
1850	37,165,990.09		3,782,393.03	3,656,385.14	44,604,718.26	35,871,753.31
1851	44,054,717.66	60,713.19	3,696,790.75	654,912.71	48,476,104.31	40,158,353.25
1852	40,389,954.56	170,063.42	4,000,297.80	2,152,293.06	46,712,608.83	43,338,860.02
1853	44,078,156.35	420,496.64	3,665,832.74	6,412,574.01	54,577,061.74	50,261,901.09
1854	51,967,528.42	2,877,818.69	3,070,926.69	17,556,896.95	75,473,170.75	48,591,073.41
1855	56,316,197.72	872,047.39	2,314,464.99	6,662,065.86	66,164,775.96	47,777,672.13
1856	66,772,527.64	385,372.90	1,953,822.37	3,614,618.66	72,726,341.57	49,108,229.80
1857	66,041,143.70	363,572.39	1,593,265.23	3,276,606.05	71,274,587.37	46,802,855.00
1858	72,330,437.17	574,443.08	1,652,055.67	7,506,250.82	82,062,186.74	35,113,334.22
1859	66,355,950.07		2,637,649.70	14,685,043.15	83,678,642.92	33,193,248.60
1860	66,064,754.71		3,144,120.94	13,854,250.00	77,055,125.65	32,979,530.78
1861	62,616,055.78		4,034,157.30	18,737,100.00	85,387,313.08	30,963,857.83
1862	484,379,898.81		13,190,344.84	96,097,322.09	593,667,563.74	46,965,304.87
1863	694,004,575.56		24,729,700.62	181,061,635.07	899,815,911.25	36,523,046.13
1864	611,282,679.14		53,685,421.69	430,572,044.08	1,295,541,114.86	134,433,788.44

January 1 to June 30, 1843.

TABLE L.—STATEMENT OF THE EXPENDITURES OF THE UNITED

Year.	War.	Navy.	Indians.	Pensions.	Miscellaneous.
1865.....	\$1,080,690,400.06	\$122,617,434.07	\$5,059,380.71	\$16,347,621.24	\$42,989,383.10
1866.....	283,154,676.06	43,285,662.00	3,296,729.32	15,605,549.88	40,613,114.17
	3,568,638,812.28	717,551,816.39	103,869,211.42	119,607,656.01	643,604,554.33
	a3,621,780.07	a77,992.17	a53,286.61	a9,737.87	a718,769.52
1867.....	3,572,260,092.35	717,629,808.56	103,422,498.08	119,617,393.88	644,323,323.85
1868.....	95,224,415.63	31,034,011.04	4,642,531.77	20,936,551.71	51,110,223.72
1869.....	123,246,648.62	25,775,502.72	4,100,682.32	23,782,386.78	53,009,867.67
1870.....	78,501,990.61	20,000,767.97	7,042,923.06	28,476,621.78	56,474,061.53
1871.....	57,655,675.40	21,780,229.87	3,407,988.15	28,340,202.17	53,237,461.56
1872.....	35,799,991.82	19,431,027.21	7,426,997.44	34,443,894.98	60,481,916.23
1873.....	85,372,157.20	21,249,809.99	7,061,723.82	28,533,402.76	60,964,787.42
1874.....	46,323,138.81	23,526,256.79	7,951,704.68	29,359,426.86	73,323,110.06
1875.....	42,313,927.22	30,932,587.42	6,692,462.09	29,038,414.66	85,141,568.61
1876.....	41,120,645.98	21,497,626.27	8,384,656.82	29,456,216.22	71,070,702.98
1877.....	38,070,888.64	18,963,309.82	5,966,553.17	28,287,395.09	73,599,661.04
1878.....	37,082,735.90	14,959,935.36	5,277,007.22	27,963,752.27	58,926,532.53
1879.....	32,154,147.85	17,365,301.37	4,629,280.28	27,137,019.08	58,177,703.57
1880.....	40,425,660.73	15,125,126.84	5,206,109.08	35,121,482.39	63,741,555.49
1881.....	38,116,916.22	13,536,984.74	5,945,457.09	56,777,174.44	54,713,539.76
1882.....	40,466,460.55	15,686,671.66	6,514,161.09	50,059,279.62	64,416,324.71
1883.....	43,570,494.19	15,032,046.26	9,736,747.40	61,845,193.95	57,219,750.96
1884.....	48,911,382.93	15,283,437.17	7,362,590.34	66,012,573.64	68,678,022.21
1885.....	39,429,603.36	17,292,601.44	6,478,999.29	55,429,228.06	70,920,423.70
1886.....	42,670,578.47	16,021,079.67	6,552,494.63	56,102,267.49	87,494,258.38
1887.....	34,324,152.74	13,907,887.74	6,099,158.17	63,404,864.03	74,166,929.85
1888.....	38,561,025.85	15,141,126.80	6,194,522.69	75,029,101.79	85,284,825.59
1889.....	38,522,436.11	16,926,437.65	6,249,307.87	80,288,508.77	72,952,360.80
1890.....	44,435,270.85	21,378,809.31	6,892,207.78	87,624,779.11	80,664,064.26
1891.....	44,582,030.08	22,006,206.24	6,708,046.67	106,936,855.07	81,403,256.49
1892.....	48,720,065.01	26,113,896.46	8,527,469.01	124,415,951.40	110,048,167.49
1893.....	46,995,456.30	29,174,138.98	11,150,577.67	134,583,062.79	99,841,968.61
1894.....	49,641,773.47	30,136,084.43	13,345,247.27	159,357,557.87	103,732,799.27
1895.....	54,567,929.85	31,701,293.79	10,293,481.52	141,177,284.96	101,943,884.07
1896.....	51,804,759.13	28,797,795.73	9,939,754.21	141,395,228.87	98,279,780.14
1897.....	50,830,920.89	27,147,732.38	12,165,528.28	139,434,000.98	87,216,234.62
1898.....	48,950,267.89	34,561,546.29	13,016,802.46	141,053,164.63	90,401,267.82
1899.....	91,992,000.23	58,623,984.80	10,994,667.70	147,452,268.61	96,520,505.17
Total.....	5,172,546,448.44	1,447,941,052.77	345,877,899.27	2,378,342,597.21	3,041,485,705.18

a Outstanding

NOTE.—This statement is made from warrants paid by the Treasurer up to June 30, 1898. The

REPORT OF THE SECRETARY OF THE TREASURY

177

STATES FROM MARCH 4, 1789, TO JUNE 30, 1898, ETC.—Continued.

Year.	Net ordinary ex- penditures.	Premiums.	Interest.	Public debt.	Gross expendi- tures.	Balance in Treasury at the end of the year.
1865	\$1,217,704,199.28	\$1,717,900.11	\$77,395,090.30	\$609,616,141.68	\$1,906,433,331.37	\$33,933,657.89
1866	385,954,731.43	58,476.51	133,067,624.91	620,263,249.10	1,139,344,081.95	165,301,654.76
	5,152,771,550.43	7,611,003.56	502,689,519.27	2,374,677,103.12	8,037,749,176.38	.....
	a 4,481,566.24	.....	a 2,888.48	a 100.31	a 54,484,555.03	a 4,484,555.03
	5,157,253,116.67	7,611,003.56	502,692,407.75	2,374,677,203.43	8,042,233,731.41	160,817,099.73
1867	202,947,733.87	10,813,349.38	143,781,591.91	735,536,980.11	1,093,079,655.27	198,076,537.09
1868	229,915,088.11	7,001,151.04	140,424,045.71	692,549,685.88	1,069,889,970.74	158,936,082.87
1869	190,496,354.95	1,674,680.05	130,694,242.80	261,912,718.31	584,777,996.11	183,781,985.76
1870	164,421,507.15	15,996,555.60	129,235,498.00	393,254,282.13	703,907,842.88	177,604,116.51
1871	157,583,827.58	9,016,794.74	125,576,565.93	399,503,870.65	691,680,858.90	128,019,122.15
1872	153,201,856.19	6,958,266.76	117,357,839.72	405,007,307.54	682,525,270.21	134,666,001.85
1873	180,488,636.90	5,105,919.99	104,750,688.44	233,699,352.58	524,044,597.91	150,293,673.41
1874	194,118,985.00	1,395,073.55	107,119,815.21	422,065,060.22	724,698,933.99	178,833,339.54
1875	171,529,848.27	.....	103,093,544.57	407,377,492.48	682,000,885.32	172,804,061.32
1876	164,857,813.36	.....	100,243,271.23	449,345,272.80	714,446,357.39	149,909,377.21
1877	144,209,963.28	.....	97,124,511.58	323,065,424.05	565,299,393.91	214,887,645.83
1878	134,463,452.15	.....	102,500,874.65	353,676,944.90	590,641,271.70	286,591,452.88
1879	161,619,994.53	.....	105,327,949.00	699,445,809.18	966,393,692.69	388,832,588.65
1880	166,090,062.25	2,795,320.42	95,757,575.11	432,580,280.41	700,233,238.19	231,940,084.44
1881	177,142,897.63	1,061,248.78	82,508,741.18	165,152,335.05	420,965,222.64	280,607,688.87
1882	186,904,232.78	.....	71,077,206.79	271,646,299.55	529,627,739.12	275,450,903.53
1883	206,248,008.29	.....	59,180,131.85	590,083,829.96	855,491,967.50	374,189,081.98
1884	198,547,865.85	.....	54,678,378.48	260,520,690.50	504,646,934.83	424,941,402.07
1885	208,840,678.64	.....	51,886,256.47	211,780,353.42	471,967,283.54	521,794,026.26
1886	191,902,892.53	.....	50,580,145.97	205,216,709.36	447,699,847.98	526,848,755.46
1887	220,190,902.72	.....	47,741,577.23	271,901,321.15	539,833,501.12	512,851,434.86
1888	214,538,851.20	8,270,842.46	44,715,007.47	249,780,258.05	517,085,059.18	659,449,999.94
1889	240,995,131.21	17,292,362.65	41,001,484.29	318,922,412.35	618,211,890.80	673,399,118.18
1890	261,637,202.55	20,304,224.06	36,099,284.05	312,206,367.50	630,247,078.16	691,527,402.76
1891	317,825,549.37	10,401,220.61	37,547,135.37	365,352,470.87	731,126,876.22	728,222,332.60
1892	321,645,214.35	.....	23,378,116.23	338,965,868.98	684,019,289.56	773,604,339.28
1893	354,213,502.31	.....	27,264,892.18	389,530,044.50	778,007,996.99	738,467,555.07
1894	339,653,674.19	.....	27,841,405.64	331,383,272.85	698,908,552.78	763,565,540.75
1895	325,217,208.08	.....	30,978,030.21	354,276,858.93	710,472,157.22	779,610,098.76
1896	316,794,417.15	.....	35,335,028.93	396,190,023.36	748,369,469.43	844,033,349.62
1897	327,983,049.09	.....	37,791,110.48	853,180,877.50	718,955,037.07	864,790,237.71
1898	405,783,526.57	.....	37,585,056.23	384,219,542.00	827,568,124.80	775,751,868.11
	12,385,793,202.87	125,068,013.65	2,902,298,910.08	14,354,907,110.64	29,768,597,287.24	.....

warrants.

outstanding warrants are then added, and the statement is by warrants issued from that date.

Ab. 98—12

178 REPORT OF THE SECRETARY OF THE TREASURY.

TABLE M.—STATEMENT SHOWING THE AMOUNTS OF MONEY IN THE UNITED STATES, IN THE TREASURY AND IN CIRCULATION, ON THE DATES SPECIFIED.

JULY 1, 1860.

[Population, 31,443,321; circulation per capita, \$13.85.]

	General stock coined or issued.	In Treasury.	Amount in circulation.
Specie.....	\$235,000,000	\$6,695,225	\$228,304,775
State-bank notes.....	207,102,477	.....	207,102,477
	442,102,477	6,695,225	435,407,252

JULY 1, 1861.

[Population, 32,064,000; circulation per capita, \$13.98.]

Specie.....	\$250,000,000	\$3,600,000	\$246,400,000
State-bank notes.....	202,005,767	.....	202,005,767
	452,005,767	3,600,000	448,405,767

JULY 1, 1862.

[Population, 32,704,000; circulation per capita, \$10.23.]

State-bank notes.....	\$183,792,079	.....	\$183,792,079
United States notes.....	96,620,000	\$23,754,335	72,865,665
Demand notes.....	53,040,000	.....	53,040,000
	333,452,079	23,754,335	309,697,744
Add: Specie in circulation on the Pacific coast.....	.....	.....	25,000,000
			334,697,744

JULY 1, 1863.

[Population, 33,365,000; circulation per capita, \$17.84.]

Fractional currency.....	\$20,192,456	\$4,306,074	\$15,884,382
State-bank notes.....	238,677,218	.....	238,677,218
United States notes.....	387,646,589	75,165,171	312,481,418
Demand notes.....	3,351,020	.....	3,351,020
	649,867,283	79,473,245	570,394,038
Add: Specie in circulation on the Pacific coast.....	.....	.....	25,000,000
			595,394,038

JULY 1, 1864.

[Population, 34,046,000; circulation per capita, \$19.67.]

Fractional currency.....	\$22,894,877	\$3,762,376	\$19,132,501
State-bank notes.....	179,157,717	.....	179,157,717
United States notes.....	447,300,203	32,184,213	415,115,990
National-bank notes.....	81,235,270	.....	31,235,270
	680,588,067	35,946,589	644,641,478
Add: Specie in circulation on the Pacific coast.....	.....	.....	25,000,000
			669,641,478

REPORT OF THE SECRETARY OF THE TREASURY. 179

TABLE M.—STATEMENT SHOWING THE AMOUNTS OF MONEY IN THE UNITED STATES, IN THE TREASURY AND IN CIRCULATION, ON THE DATES SPECIFIED—Continued.

JULY 1, 1865.

[Population, 34,748,000; circulation per capita, \$20.57.]

	General stock coined or issued.	In Treasury.	Amount in circulation.
Fractional currency.....	\$25,005,839	\$3,277,074	\$21,728,755
State-bank notes.....	142,919,638		142,919,638
United States notes.....	431,006,428	53,149,686	378,916,742
National-bank notes.....	146,137,990		146,137,990
	745,129,755	55,426,760	689,702,995
Add: Specie in circulation on the Pacific coast.....			25,000,000
			714,702,995

JULY 1, 1866.

[Population, 35,469,000; circulation per capita, \$18.99.]

State-bank notes.....	\$19,996,163		\$19,996,163
Fractional currency.....	27,070,877	\$2,383,814	24,687,063
United States notes.....	400,780,306	72,988,001	327,792,305
National-bank notes.....	281,479,908	5,467,195	276,012,713
	729,327,254	80,839,010	648,488,244
Add: Specie in circulation on the Pacific coast.....			25,000,000
			673,488,244

JULY 1, 1867.

[Population, 36,211,000; circulation per capita, \$18.38.]

State-bank notes.....	\$4,484,112		\$4,484,112
Fractional currency.....	28,307,534	\$2,001,230	26,306,294
United States notes.....	371,783,597	52,345,895	319,437,702
National-bank notes.....	298,625,379	11,861,416	286,763,961
	703,200,612	66,208,543	636,992,069
Add: Specie in circulation on the Pacific coast.....			25,000,000
			661,992,069

JULY 1, 1868.

[Population, 36,973,000; circulation per capita, \$18.89.]

State-bank notes.....	\$3,163,771		\$3,163,771
Fractional currency.....	32,626,952	\$3,627,600	28,999,352
United States notes.....	356,000,000	27,428,335	328,571,665
National-bank notes.....	299,762,855	5,393,982	294,368,873
	691,553,578	36,449,917	655,103,661
Add: Specie in circulation on the Pacific coast.....			25,000,000
			680,103,661

JULY 1, 1869.

[Population, 37,756,000; circulation per capita, \$17.80.]

State-bank notes.....	\$2,558,874		\$2,558,874
Fractional currency.....	32,114,637	\$1,672,398	30,442,239
United States notes.....	355,985,194	41,233,100	314,702,094
National-bank notes.....	299,742,475	7,992,791	291,749,684
	690,351,180	50,898,289	639,452,891
Add: Specie in circulation on the Pacific coast.....			25,000,000
			664,452,891

180 REPORT OF THE SECRETARY OF THE TREASURY.

TABLE M.—STATEMENT SHOWING THE AMOUNTS OF MONEY IN THE UNITED STATES, IN THE TREASURY AND IN CIRCULATION, ON THE DATES SPECIFIED—Continued.

JULY 1, 1870.

[Population, 38,558,371; circulation per capita, \$17.50.]

	General stock coined or issued.	In Treasury.	Amount in circulation.
State-bank notes	\$2,222,793	.....	\$2,222,793
Fractional currency	89,878,684	\$5,499,402	34,379,232
United States notes	856,000,000	31,037,362	324,963,638
National-bank notes	299,766,984	11,118,908	288,648,081
Add: Specie in circulation on the Pacific coast	697,868,461	47,655,697	650,212,764
			25,000,000
			675,212,764

JULY 1, 1871.

[Population, 39,558,000; circulation per capita, \$18.10.]

State-bank notes	\$1,968,058	.....	\$1,968,058
Fractional currency	40,582,875	\$6,136,570	34,446,306
United States notes	856,000,000	12,931,030	243,068,970
National-bank notes	318,261,241	6,855,569	311,405,673
Add: Specie in circulation on the Pacific coast	716,812,174	25,923,100	690,889,005
			25,000,000
			715,889,005

JULY 1, 1872.

[Population, 40,596,000; circulation per capita, \$18.19.]

State-bank notes	\$1,700,935	.....	\$1,700,935
Fractional currency	40,855,535	\$4,452,906	36,402,929
United States notes	357,500,000	11,331,320	246,168,680
National-bank notes	337,664,796	8,627,790	329,037,005
Add: Specie in circulation on the Pacific coast	737,721,565	24,412,016	713,309,549
			25,000,000
			738,309,549

JULY 1, 1873.

[Population, 41,677,000; circulation per capita, \$18.04.]

State-bank notes	\$1,879,184	.....	\$1,879,184
Fractional currency	44,799,865	\$6,723,800	38,076,005
United States notes	356,000,000	7,535,855	343,464,145
National-bank notes	347,267,061	8,304,586	338,962,475
Add: Specie in circulation on the Pacific coast	749,445,610	22,563,801	726,881,809
			25,000,000
			751,881,809

JULY 1, 1874.

[Population, 42,796,000; circulation per capita, \$18.13.]

State-bank notes	\$1,162,453	.....	\$1,162,453
Fractional currency	45,881,296	\$7,647,714	38,233,582
United States notes	382,000,000	10,578,548	371,421,452
National-bank notes	351,981,032	11,715,483	340,265,544
Add: Specie in circulation on the Pacific coast	781,024,781	29,941,750	751,083,031
			25,000,000
			776,083,031

REPORT OF THE SECRETARY OF THE TREASURY. 181

TABLE M.—STATEMENT SHOWING THE AMOUNTS OF MONEY IN THE UNITED STATES, IN THE TREASURY AND IN CIRCULATION, ON THE DATES SPECIFIED—Continued.

JULY 1, 1875.

[Population, 43,951,000; circulation per capita, \$17.16.]

	General stock coined or issued.	In Treasury.	Amount in circulation.
State-bank notes	\$964, 497		\$964, 497
Fractional currency	42, 129, 424	\$4, 224, 854	37, 904, 570
United States notes	376, 771, 580	26, 085, 245	349, 686, 335
National-bank notes	354, 408, 008	13, 861, 463	340, 546, 545
	773, 278, 509	44, 171, 562	729, 101, 947
Add: Specie in circulation on the Pacific coast			25, 000, 000
			754, 101, 947

JULY 1, 1876.

[Population, 45,137,000; circulation per capita, \$16.12.]

State-bank notes	\$1, 047, 335		\$1, 047, 335
Subsidiary silver	27, 418, 734	\$6, 363, 606	21, 055, 128
Fractional currency	34, 446, 595	1, 507, 750	32, 938, 845
United States notes	869, 772, 284	38, 324, 906	331, 447, 378
National-bank notes	332, 998, 336	16, 877, 634	316, 120, 702
	765, 683, 284	63, 073, 896	702, 699, 388
Add: Specie in circulation on the Pacific coast			25, 000, 000
			727, 699, 388

The amount of subsidiary silver in circulation, according to the records of the Department, was \$21,055,128, but for the sake of uniformity \$5,000,000 of this amount is deducted and stated as a part of the specie in circulation on the Pacific Coast, as heretofore.

JULY 1, 1877.

[Population, 46,353,000; circulation per capita, \$15.56.]

Subsidiary silver	\$40, 837, 506	\$2, 952, 653	\$37, 884, 853
Fractional currency	20, 403, 137	161, 476	20, 241, 661
United States notes	359, 764, 332	21, 864, 988	337, 899, 344
National-bank notes	317, 048, 872	15, 759, 847	301, 289, 025
	738, 058, 847	40, 738, 964	697, 314, 883
Add: Specie in circulation on the Pacific coast			25, 000, 000
			722, 314, 883

JULY 1, 1878.

[Population, 47,598,000; circulation per capita, \$15.32.]

Standard silver dollars, including bullion in Treasury.	\$16, 269, 079	\$15, 059, 828	\$1, 209, 251
Subsidiary silver	60, 778, 628	6, 860, 506	53, 918, 322
Silver certificates	1, 462, 600	1, 455, 520	7, 080
Fractional currency	16, 547, 769	180, 044	16, 367, 725
United States notes	349, 681, 016	25, 775, 121	323, 905, 895
National-bank notes	324, 514, 284	12, 789, 923	311, 724, 361
	766, 253, 876	62, 120, 942	704, 133, 634
Add: Specie in circulation on the Pacific coast			25, 000, 000
			729, 133, 634

182 REPORT OF THE SECRETARY OF THE TREASURY.

TABLE M.—STATEMENT SHOWING THE AMOUNTS OF MONEY IN THE UNITED STATES, IN THE TREASURY AND IN CIRCULATION, ON THE DATES SPECIFIED—Continued.

JULY 1, 1879.

[Population, 48,866,000; circulation per capita, \$16.75.]

	General stock coined or issued.	In Treasury.	Amount in circulation.
Gold coin, including bullion in Treasury.....	\$245, 741, 837	\$135, 236, 475	\$110, 505, 362
Standard silver dollars, including bullion in Treasury.....	41, 276, 356	33, 239, 917	8, 036, 439
Subsidiary silver.....	70, 249, 985	8, 993, 401	61, 246, 584
Gold certificates.....	15, 413, 700	133, 880	15, 279, 820
Silver certificates.....	2, 466, 950	2, 052, 470	414, 480
United States notes.....	346, 681, 016	45, 036, 904	301, 644, 112
National-bank notes.....	329, 991, 997	8, 286, 701	321, 404, 996
	1, 051, 521, 541	232, 889, 748	818, 631, 793

JULY 1, 1880.

[Population, 50,155,783; circulation per capita, \$19.41.]

Gold coin, including bullion in Treasury.....	\$351, 841, 206	\$126, 145, 427	\$225, 695, 779
Standard silver dollars, including bullion in Treasury.....	69, 060, 408	49, 549, 851	20, 110, 557
Subsidiary silver.....	72, 862, 270	24, 350, 482	48, 511, 788
Gold certificates.....	8, 004, 800	40, 700	7, 963, 900
Silver certificates.....	12, 374, 270	6, 584, 701	5, 789, 569
United States notes.....	346, 681, 016	18, 785, 559	327, 895, 457
National-bank notes.....	344, 505, 427	7, 090, 249	337, 415, 178
	1, 205, 929, 197	232, 546, 989	973, 382, 228

JULY 1, 1881.

[Population, 51,816,000; circulation per capita, \$21.71.]

Gold coin, including bullion in Treasury.....	\$478, 484, 588	\$163, 171, 661	\$315, 312, 877
Standard silver dollars, including bullion in Treasury.....	95, 297, 083	65, 954, 671	29, 342, 412
Subsidiary silver.....	74, 087, 061	27, 247, 697	46, 839, 364
Gold certificates.....	5, 782, 920	23, 400	5, 759, 520
Silver certificates.....	51, 166, 530	12, 055, 801	39, 110, 729
United States notes.....	346, 681, 016	18, 554, 092	328, 126, 924
National-bank notes.....	355, 042, 675	5, 296, 382	349, 746, 293
	1, 406, 541, 823	292, 303, 704	1, 114, 238, 119

JULY 1, 1882.

[Population, 52,495,000; circulation per capita, \$22.37.]

Gold coin, including bullion in Treasury.....	\$506, 757, 715	\$148, 506, 390	\$358, 251, 325
Standard silver dollars, including bullion in Treasury.....	122, 788, 544	90, 384, 724	32, 403, 820
Subsidiary silver.....	74, 428, 580	28, 048, 631	46, 379, 949
Gold certificates.....	5, 037, 120	8, 100	5, 029, 020
Silver certificates.....	66, 096, 710	11, 590, 620	54, 506, 090
United States notes.....	346, 681, 016	21, 425, 589	325, 255, 427
National-bank notes.....	358, 742, 084	6, 277, 246	352, 464, 788
	1, 480, 531, 719	306, 241, 300	1, 174, 290, 419

JULY 1, 1883.

[Population, 53,693,000; circulation per capita, \$22.91.]

Gold coin, including bullion in Treasury.....	\$542, 732, 063	\$198, 078, 568	\$344, 653, 495
Standard silver dollars, including bullion in Treasury.....	152, 047, 685	116, 396, 235	35, 651, 450
Subsidiary silver.....	74, 960, 300	28, 486, 001	46, 474, 299
Gold certificates.....	82, 378, 640	22, 571, 370	59, 807, 270
Silver certificates.....	88, 616, 831	15, 996, 145	72, 620, 686
United States notes.....	346, 681, 016	23, 438, 839	323, 242, 177
National-bank notes.....	356, 078, 281	8, 217, 062	347, 854, 219
	1, 643, 489, 816	413, 184, 120	1, 230, 305, 696

REPORT OF THE SECRETARY OF THE TREASURY. 183

TABLE M.—STATEMENT SHOWING THE AMOUNTS OF MONEY IN THE UNITED STATES, IN THE TREASURY AND IN CIRCULATION, ON THE DATES SPECIFIED—Continued.

JULY 1, 1884.

[Population, 54,911,000; circulation per capita, \$22.65.]

	General stock coined or issued.	In Treasury.	Amount in circulation.
Gold coin, including bullion in Treasury.....	\$545,500,797	\$204,876,594	\$340,624,203
Standard silver dollars, including bullion in Treasury.....	180,306,614	139,616,414	40,690,200
Subsidiary silver.....	75,261,528	29,800,720	45,460,808
Gold certificates.....	98,392,080	27,248,020	71,144,060
Silver certificates.....	119,811,691	23,384,680	96,427,011
United States notes.....	346,681,016	27,993,802	318,687,214
National bank notes.....	339,490,883	8,809,990	330,680,893
	1,705,454,189	461,528,220	1,243,925,969

JULY 1, 1885.

[Population, 56,148,000; circulation per capita, \$23.02.]

Gold coin, including bullion in Treasury.....	\$588,697,036	\$247,028,625	\$341,668,411
Standard silver dollars, including bullion in Treasury.....	208,538,967	169,451,968	39,086,999
Subsidiary silver.....	74,939,820	31,236,899	43,702,921
Gold certificates.....	140,323,140	13,593,410	126,729,730
Silver certificates.....	139,801,646	38,370,700	101,430,946
United States notes.....	346,681,016	15,462,379	331,218,637
National bank notes.....	318,576,711	9,945,710	308,631,001
	1,817,658,336	525,089,721	1,292,568,615

JULY 1, 1886.

[Population, 57,404,000; circulation per capita, \$21.82.]

Gold coin, including bullion in Treasury.....	\$590,774,461	\$232,554,886	\$358,219,575
Standard silver dollars, including bullion in Treasury.....	237,191,906	184,523,283	52,668,623
Subsidiary silver.....	75,060,937	28,886,947	46,173,990
Gold certificates.....	131,174,245	55,129,870	76,044,375
Silver certificates.....	115,977,675	27,861,450	88,116,225
United States notes.....	346,681,016	22,868,817	323,812,199
National bank notes.....	311,690,454	4,034,416	307,656,038
	1,808,550,694	555,859,169	1,252,700,525

JULY 1, 1887.

[Population, 58,680,000; circulation per capita, \$22.45.]

Gold coin, including bullion in Treasury.....	\$654,530,335	\$277,979,654	\$376,550,681
Standard silver dollars, including bullion in Treasury.....	277,445,767	221,897,046	55,548,721
Subsidiary silver.....	75,547,799	26,963,934	48,583,865
Gold certificates.....	121,488,617	30,261,380	91,227,237
Silver certificates.....	145,543,150	8,425,133	142,118,017
United States notes.....	346,681,016	20,013,797	326,667,219
National bank notes.....	279,217,788	2,362,585	276,855,203
	1,900,442,672	582,903,529	1,317,539,143

JULY 1, 1888.

[Population, 59,574,000; circulation per capita, \$22.83.]

Gold coin, including bullion in Treasury.....	\$705,818,855	\$314,704,822	\$391,114,033
Standard silver dollars, including bullion in Treasury.....	310,166,459	254,639,063	55,527,396
Subsidiary silver.....	76,406,376	26,044,062	50,362,314
Gold certificates.....	142,023,150	20,928,500	121,094,650
Silver certificates.....	229,491,772	28,732,115	200,759,657
United States notes.....	346,681,016	38,680,976	308,000,040
National bank notes.....	252,868,321	7,055,541	245,812,780
	2,062,955,949	690,785,079	1,372,170,870

TABLE M.—STATEMENT SHOWING THE AMOUNTS OF MONEY IN THE UNITED STATES, IN THE TREASURY AND IN CIRCULATION, ON THE DATES SPECIFIED—Continued.

JULY 1, 1889.

[Population, 61,289,000; circulation per capita, \$22.52.]

	General stock coined or issued.	In Treasury.	Amount in circulation.
Gold coin, including bullion in Treasury	\$680,063,505	\$303,581,937	\$376,481,568
Standard silver dollars, including bullion in Treasury	343,947,093	289,489,794	54,457,299
Subsidiary coin	76,601,886	25,124,072	51,477,814
Gold certificates	154,048,552	30,913,323	117,130,229
Silver certificates	262,629,746	5,474,181	257,155,565
United States notes	346,681,016	30,241,825	316,439,191
National-bank notes	211,378,963	4,158,330	207,220,633
	2,075,350,711	694,989,062	1,380,361,649

JULY 1, 1890.

[Population, 62,622,250; circulation per capita, \$23.82.]

Gold coin, including bullion in Treasury	\$695,563,029	\$321,304,106	\$374,258,923
Standard silver dollars, including bullion in Treasury	380,083,304	323,804,555	56,278,749
Subsidiary silver	76,826,305	22,792,718	54,033,587
Gold certificates	157,562,979	26,782,120	130,780,859
Silver certificates	301,539,751	3,983,513	297,556,238
United States notes	346,681,016	11,992,039	334,688,977
National-bank notes	185,970,775	4,365,838	181,604,937
	2,144,226,159	714,974,869	1,429,251,270

JULY 1, 1891.

[Population, 63,975,000; circulation per capita, \$23.41.]

Gold coin, including bullion in Treasury	\$646,582,852	\$239,263,699	\$407,319,153
Standard silver dollars, including bullion in Treasury	438,753,502	379,927,323	58,826,179
Subsidiary silver	77,848,700	19,629,480	58,219,220
Gold certificates	152,486,439	32,423,360	120,063,079
Silver certificates	314,715,185	7,479,219	307,235,966
Treasury notes, act July 14, 1890	50,238,417	9,879,713	40,358,704
United States notes	346,681,016	3,473,656	343,207,360
National-bank notes	167,927,974	5,706,928	162,221,046
	2,195,234,075	697,783,368	1,497,450,707

JULY 1, 1892.

[Population, 65,520,000; circulation per capita, \$24.44.]

Gold coin, including bullion in Treasury	\$664,275,335	\$255,706,511	\$408,568,824
Standard silver dollars, including bullion in Treasury	491,067,518	434,240,056	56,817,462
Subsidiary silver	77,521,478	14,227,774	63,293,704
Gold certificates	156,623,929	15,530,810	141,093,119
Silver certificates	331,614,304	4,930,839	326,683,465
Treasury notes, act July 14, 1890	101,712,071	3,453,379	98,258,692
United States notes	346,681,016	37,121,112	309,559,904
Currency certificates, act June 8, 1873	30,430,000	590,000	29,840,000
National-bank notes	172,683,850	5,462,338	167,221,512
	2,372,599,501	771,252,314	1,601,347,187

REPORT OF THE SECRETARY OF THE TREASURY. 185

TABLE M.—STATEMENT SHOWING THE AMOUNTS OF MONEY IN THE UNITED STATES, IN THE TREASURY AND IN CIRCULATION, ON THE DATES SPECIFIED—Continued.

JULY 1, 1893.

[Population, 66,946,000; circulation per capita, \$23.85.]

	General stock coined or issued.	In Treasury.	Amount in circulation.
Gold coin, including bullion in Treasury	\$597,697,685	\$189,162,022	\$408,535,663
Standard silver dollars, including bullion in Treasury	538,300,776	481,371,103	56,929,673
Subsidiary silver	77,415,123	11,945,257	65,469,866
Gold certificates	94,041,189	1,399,000	92,642,189
Silver certificates	330,957,504	4,133,656	326,823,848
Treasury notes, act of July 14, 1890	147,190,227	6,334,613	140,855,614
United States notes	346,681,016	27,621,590	319,059,426
Currency certificates, act June 8, 1872	12,405,000	690,000	11,715,000
National bank notes	178,713,872	4,043,906	174,669,966
	2,323,402,392	726,701,147	1,596,701,245

JULY 1, 1894.

[Population, 68,397,000; circulation per capita, \$24.28.]

Gold coin, including bullion in Treasury	\$627,293,201	\$131,316,471	\$495,976,730
Standard silver dollars, including bullion in Treasury	548,000,032	495,435,370	52,564,662
Subsidiary silver	76,248,925	17,738,968	58,510,957
Gold certificates	66,387,899	48,050	66,339,849
Silver certificates	337,148,504	10,157,768	326,990,736
Treasury notes, act July 14, 1890	152,584,417	17,902,988	134,681,429
United States notes	346,681,016	80,091,414	266,589,602
Currency certificates, act June 8, 1872	58,235,000	300,000	58,935,000
National bank notes	206,854,787	6,635,044	200,219,743
	2,420,434,781	759,626,073	1,660,808,708

JULY 1, 1895.

[Population, 69,878,000; circulation per capita, \$22.93.]

Gold coin, including bullion in Treasury	\$636,256,023	\$156,618,062	\$479,637,961
Standard silver dollars, including bullion in Treasury	547,777,049	495,791,006	51,986,043
Subsidiary silver	76,954,434	16,604,420	60,350,014
Gold certificates	48,469,959	88,650	48,381,309
Silver certificates	328,894,504	9,271,563	319,622,941
Treasury notes, act July 14, 1890	146,088,400	30,145,231	115,943,169
United States notes	346,681,016	83,032,031	263,648,985
Currency certificates, act June 8, 1872	55,795,000	850,000	55,445,000
National bank notes	211,091,035	4,737,984	206,353,051
	2,398,607,420	796,638,947	1,601,968,473

JULY 1, 1896.

[Population, 71,390,000; circulation per capita, \$21.10.]

Gold coin, including bullion in Treasury	\$599,597,964	\$144,692,900	\$454,905,064
Standard silver dollars, including bullion in Treasury	551,723,999	499,607,095	52,116,904
Subsidiary silver	75,971,507	15,767,056	60,204,451
Gold certificates	42,818,189	620,070	42,198,119
Silver certificates	342,619,504	11,962,313	330,657,191
Treasury notes, act July 14, 1890	129,683,280	34,638,033	95,045,247
United States notes	346,681,016	122,431,148	224,249,868
Currency certificates, act June 8, 1872	32,210,000	320,000	31,890,000
National bank notes	226,000,547	10,832,425	215,168,122
	2,347,306,006	840,871,040	1,506,434,966

TABLE N.—STATEMENT OF UNITED STATES BONDS AND OTHER OBLIGATIONS RECEIVED AND ISSUED BY THE OFFICE OF THE SECRETARY OF THE TREASURY FROM NOVEMBER 1, 1897, TO OCTOBER 31, 1898.

Title of loan.	Received for exchange and transfer.	Received for redemption.	Issued.	Total transactions.
Six per cent bonds (act of July 17, 1861).....		\$1,000		\$1,000
Six per cent bonds (act of Feb. 25, 1862).....		50		50
Gold certificates (series of 1888).....		505,000		505,000
Bonds issued to Pacific railroads (acts of July 1, 1862, and July 2, 1864).....	\$14,073,000	31,073,952	\$14,073,000	59,219,952
Ten-forty bonds of 1864 (act of Mar. 3, 1864).....		14,050		14,050
Consols of 1865 (act of Mar. 3, 1865).....		20,500		20,500
Consols of 1867 (act of Mar. 3, 1865).....		15,650		15,650
Funded loan of 1881, 5 per cent (acts of July 14, 1870, and Jan. 20, 1871).....		2,100		2,100
Funded loan of 1881, 5 per cent (acts of July 14, 1870, and Jan. 20, 1871), continued at 3½ per cent.....		600		600
Funded loan of 1891, 4½ per cent (acts of July 14, 1870, and Jan. 20, 1871).....		24,350		24,350
Funded loan of 1907, 4 per cent (acts of July 14, 1870, and Jan. 20, 1871).....	61,041,050		61,046,450	122,087,500
Certificates of deposit (act of June 8, 1872).....		84,715,000	56,585,000	141,280,000
Three per cent bonds (act of July 12, 1882).....		5,000		5,000
Funded loan of 1891, continued at 2 per cent.....	4,544,800		4,544,800	9,089,600
Five per cent loan of 1904 (act of Jan. 14, 1875).....	26,110,250		26,110,250	52,220,500
Four per cent loan of 1925 (act of Jan. 14, 1875).....	44,639,400		44,639,400	89,278,800
Three per cent 10-20 loan of 1898 (act of June 13, 1898).....	34,163,960		213,563,140	247,727,100
Gold certificates (act Mar. 3, 1865, series 1875).....		900		900
Gold certificates (act Mar. 3, 1863, series 1870 and 1871).....		100		100
Total.....	184,572,480	116,878,252	420,542,040	721,492,752

P A P E R S

ACCOMPANYING

REPORT OF THE SECRETARY OF THE TREASURY.

REPORT OF THE TREASURER.

TREASURY DEPARTMENT,
OFFICE OF THE TREASURER,
Washington, December 1, 1898.

SIR: The transactions and condition of the Treasury for the past year present several features of interest.

REVENUES AND EXPENDITURES.

The net ordinary revenues and expenditures for the fiscal year ending June 30, 1898, present this comparison with those of the preceding twelve months:

Account.	1897.	1898.	Increase.	Decrease.
REVENUES.				
Customs	\$176,554,126.65	\$149,575,062.35	-----	\$26,979,064.30
Internal revenue	146,688,574.29	170,900,641.49	\$24,212,067.20	-----
Lands	864,581.41	1,243,129.42	378,548.01	-----
Miscellaneous	23,614,422.81	83,602,501.94	59,988,079.13	-----
Total	347,721,705.16	405,321,335.20	84,578,624.34	26,979,064.30
Net	-----	-----	57,599,630.04	-----
EXPENDITURES.				
Customs	18,356,864.82	19,764,251.59	1,407,386.77	-----
Internal revenue	8,678,929.54	4,902,511.15	-----	3,776,418.39
Interior civil	8,814,999.20	8,671,352.83	-----	143,646.37
Treasury proper	46,545,332.21	54,355,678.84	7,810,346.63	-----
Diplomatic	2,076,876.84	2,485,581.13	408,704.29	-----
Judiciary	5,928,265.21	6,341,129.63	412,864.42	-----
War Department	48,950,287.89	91,992,000.29	43,041,732.40	-----
Navy Department	34,561,546.29	58,823,984.80	24,262,438.51	-----
Indians	13,016,802.46	10,994,687.70	-----	2,022,114.76
Pensions	141,053,164.63	147,452,368.61	6,399,203.98	-----
Interest	37,791,110.48	37,585,056.23	-----	206,054.25
Total	365,774,159.57	443,368,582.80	83,742,677.00	6,148,253.77
Net	-----	-----	77,594,423.23	-----
Deficiency	18,052,454.41	38,047,247.60	19,994,793.19	-----

With a net addition of \$57,599,630.04 to the revenues, and of \$77,594,423.23 to the expenditures, a deficiency was created of \$38,047,247.60, which exceeds that of the preceding year by \$19,994,793.19.

THE NET GOLD BALANCE.

The prosperity of the country and the solidity of the general monetary condition are shown in no feature of the Treasury records more plainly than in the net gold balance. Before September 1, 1898, the highest point which this had ever attained was on April 3, 1888, when it stood at \$219,059,232. From June, 1878, for fifteen years, to June 6, 1893, it never fell so low as on that date, when the amount was \$89,589,364. The difference between this amount and the reserve of \$100,000,000 was restored by the surrender by the banks of New York City to the Treasury of gold coin in exchange for United States notes, so that the net gold balance was brought up to \$103,863,290 by August 10, 1893. Another minimum mark was reached February 1, 1894, at \$65,438,378. A sale of bonds was made in January of that year for which payments in February and March brought in \$58,660,917.63, and the net gold balance reached \$107,446,802 on March 6. Reaction set in, however, and this balance fell to \$54,975,607 by the end of July, 1894, and receipts from another sale of bonds in November and December of that year amounted to \$58,719,710.20, and the balance became \$111,142,021 on December 4, 1894.

This gold restoration was effectual for only a very brief period, for on February 11, 1895, the Treasury held only \$41,340,181 in net gold. Again bonds were sold, for which payments were received from February to June, aggregating \$65,428,056.89. Thus the net gold balance was carried up to \$107,571,230 on July 8, 1895. This relief again was only temporary, and the balance fell to \$44,563,493 on February 8, 1896. Resort was once more had to the device of selling bonds, which produced up to June, \$111,355,612.07. During this process the net gold attained a maximum of \$128,713,709, but sank for a few days as low as \$89,669,975 on July 22, 1896.

Since that month the reserve of \$100,000,000 has never been trenched upon. With some fluctuations, the tendency has been steadily upward. The products of the mines of our Northwestern States and of the Klondike, with those of Australia, and the importations from Europe, have poured in large part in a steady and precious stream into the vaults of the Government.

In the month of July, 1894, no gold either in coin or certificates was paid for customs duties at the New York office. The records given elsewhere on page 163 of this report will show how small were the receipts of this kind of money on this account from that date until the beginning of the calendar year 1898. Paper money was used in this interval for these duties almost exclusively. In March, 1898, payments of gold for customs in New York rose to 17.6 per cent, and in subsequent months the increase has been steady and large. Thus gold payments there were in April, 52.7 per cent; in May, 73.5; in June, 67.7; in July, 59.9; in August, 63.8; in September, 78, and in October, 79.6 per cent.

The receipts from this source have been an important factor in adding to the net gold balance of the Treasury.

Confidence in the credit of the nation and faith in the financial future have added strength to the Treasury. Assurance that the gold standard will be maintained, has led banks and the people to turn the yellow metal into the Treasury so far as practicable. They have preferred paper currency to gold coin in current transactions, even when assistant treasurers of the United States in various cities have been instructed to offer the latter in payment of warrants presented.

The tendency of the increase of gold in its ratio to paper currency in the Treasury still continues. The maximum attained was \$245,063,795.51, on October 7.

WAR REVENUE AND POPULAR LOAN.

Under the war-revenue act of June 13, 1898, the receipts from internal revenue began to increase, and were in successive months:

June	\$16,683,365.80
July	26,170,697.29
August	24,015,934.98
September	21,555,288.54
October	22,356,511.87

At the same time also payments for the popular loan turned moneys into the Treasury at a rapid rate. They were as follows:

June	\$26,514,836.80
July	74,868,043.31
August	57,623,104.03
September	27,885,894.15
October	8,552,309.33

Total	195,444,187.62
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These payments were received at the respective offices of the Treasury in these amounts:

Washington	\$126,458,760.91
Baltimore	3,394,551.20
New York	39,715,299.91
Philadelphia	4,526,214.98
Boston	5,990,238.07
Cincinnati	3,461,637.61
Chicago	7,649,149.84
St. Louis	2,192,024.72
New Orleans	213,767.29
San Francisco	1,842,543.09

Total	195,444,187.62
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ANTICIPATION OF PAYMENTS.

The apprehension was natural that the drain upon the currency of the country for these two purposes might create such a stringency as would be harmful to general business. To prevent such a result, payment was anticipated of the interest on the funded loan of 1907, due October 1. Notice was given that the coupons amounting to \$686,175 might be presented September 10, and checks for the interest on registered bonds, amounting to \$4,910,294, were sent out September 20.

Like notice was given that the interest due November 1 on the loans of 1904 and 1925, as also on the popular loan of 1898, would be anticipated, the coupons on October 10, and the interest on registered bonds by check on and after October 20. These amounts were:

Title of loan.	Coupons.	Registered.	Total.
Loan of 1904	\$419,856.87	\$830,143.12	\$1,250,000.00
Loan of 1925	496,337.50	1,126,826.50	1,623,164.00
Loan of 1898	972,501.15	372,992.70	1,345,493.85
Total	1,888,695.52	2,329,962.33	4,218,647.85

By circular issued by the Secretary of the Treasury September 3, 1898, the option was offered to holders of the Pacific Railroad bonds, falling due January 1, 1899, to receive payment during that month of principal and interest in full, less a rebate of one-half of 1 per cent. Although these bonds amounted to \$14,004,560, only \$918,000 were presented for payment during September. The option was extended for October on the same terms, and during that month such bonds were paid to the sum of \$273,000. November 1, of these bonds \$12,813,560 remained to be paid. The option was again extended on identical terms for the month of November.

DEPOSITS IN NATIONAL BANKS.

When it became obvious by the sudden close of hostilities with Spain that the demands upon the Treasury would not reach the magnitude for which prudence required provision should be made, the Secretary of the Treasury determined to deposit a large share of the proceeds from the popular loan in national banks in all parts of the country. By this process the funds, while at all times available for any possible needs of the Government, remained in the channels of trade. These deposits in successive months were:

Month.	Increase during month.	Balance at end of month.
May		\$28, 239, 358. 72
June	\$10, 556, 271. 80	38, 795, 630. 52
July	19, 470, 387. 18	58, 266, 017. 70
August	7, 702, 449. 45	65, 968, 467. 15
September	14, 920, 244. 94	80, 888, 712. 09
October	14, 126, 257. 51	95, 014, 969. 60

NO MONETARY STRINGENCY.

The result of these methods has proved in all respects satisfactory. At various times alarm was expressed in certain quarters that the money market would be disastrously affected by the immense payments into the Treasury. The moral effect of the anticipation of interest and of the Pacific bonds gave confidence, and the Government deposits in national banks afforded resources adequate to the country's need. The consequence was that the immense financial operations rendered necessary by the war with Spain were so conducted that the money markets were in no degree disturbed at any time. The rate of interest both on call and time loans has been held even below a normal standard. The quotations for money in New York have ruled at lower figures than have prevailed in most of the financial centers of the Old World.

THE PUBLIC DEBT.

Although allotments of the new 3 per cent bonds began to be made on June 14, bearing interest from that date, the bonds at the close of the fiscal year were not yet ready for issue, and no part of the loan was then in such shape as to be included, under the practice of the Department, in the official statements of the public debt. For this reason the published records of the debt relating to that period exhibit a technical rather than an actually existent state of affairs. Up to November 1 these bonds had been issued to the amount of \$179,399,180.

With the exception of the outstanding contracts for the new loan, the

only change which occurred during the year in the principal of the interest-bearing debt arose from the conversion of \$3,610 in refunding certificates, with \$2,340 of interest thereon, into 4 per cent bonds of the loan of 1907, increasing the combined principal of the two loans affected by the amount of the interest converted. The other changes in the part of the debt which rests solely upon the public credit, exclusive of the bonds issued to Pacific railroads, were caused by the redemption of \$84,200 of matured bonds, together with \$350 of old demand notes and \$2,950 in fractional currency, and the deposit of \$6,034,510, in excess of the redemptions, for the retirement of national-bank notes.

Of the Pacific railroad bonds, \$29,850,952 were paid during the year, leaving a balance of \$14,133,560 of this loan outstanding, of which \$129,000 was past due and payable on presentation, and \$14,004,560 will mature on January 1, 1899.

In the Appendix will be found a table which shows in detail the changes which have here been summarized. The subjoined statement exhibits the outstanding principal in a somewhat more condensed form:

Title.	Rate of interest.	When payable.	June 30, 1897.	June 30, 1898.
	<i>Per cent.</i>			
Funded loan of 1891.....	2	Option of United States.....	\$25,364,500.00	\$25,364,500.00
Funded loan of 1907.....	4	July 1, 1907.....	559,640,100.00	559,640,050.00
Refunding certificates.....	4	Convertible.....	45,130.00	41,520.00
Loan of 1904.....	5	February 1, 1904.....	100,000,000.00	100,000,000.00
Loan of 1925.....	4	February 1, 1925.....	162,315,400.00	162,315,400.00
Matured loans.....		On demand.....	1,346,880.26	1,262,680.26
Old demand notes.....		do.....	54,347.50	53,997.50
United States notes.....		do.....	346,681,016.00	346,681,016.00
Fractional currency.....		do.....	6,887,702.14	6,884,752.14
National-bank notes.....		do.....	24,458,637.00	30,493,147.00
Gold certificates.....		do.....	88,782,169.00	87,420,149.00
Silver certificates.....		do.....	876,479,504.00	398,556,504.00
Currency certificates.....		do.....	61,750,000.00	26,605,000.00
Treasury notes of 1890.....		do.....	114,867,280.00	101,207,280.00
Total.....			1,817,672,665.90	1,796,531,995.90

A still further condensation, excluding the certificates and Treasury notes, and exhibiting the debt under three general heads, may be found convenient:

Class.	June 30, 1897.	June 30, 1898.
Interest-bearing.....	\$847,365,180.00	\$847,367,470.00
Matured.....	1,346,880.26	1,262,680.26
Bearing no interest.....	378,081,702.64	384,112,912.64
Total.....	1,226,793,712.90	1,232,743,062.90

With respect to the conditions under which the principal may be paid, the debt arranges itself under five heads:

Condition of payment.	June 30, 1897.	June 30, 1898.
At option of the United States.....	\$25,364,500.00	\$25,364,500.00
At maturity, future dates.....	822,000,630.00	822,002,970.00
On demand, without release.....	82,747,566.90	38,094,576.90
On demand, for release.....	461,548,296.00	447,888,296.00
On demand, out of deposits.....	476,011,673.00	462,581,653.00
Total.....	1,817,672,665.90	1,796,531,995.90

REFUNDING CERTIFICATES.

Of the \$40,012,750 refunding certificates issued under the act of February 26, 1879, only \$41,520 remained outstanding at the close of the fiscal year. By law they can only be refunded into 4 per cent bonds, and as the smallest denomination of those bonds is for \$50, three certificates with accrued interest must be secured to permit the transaction. As their volume diminishes the difficulty increases of gathering them. If ever compulsion were necessary to induce the acceptance of 4 per cent bonds of the United States, no such need now exists.

The convenience of holders and of the Treasury will be promoted by an enactment providing for the payment on demand with accrued interest of the small remnant of these certificates. This subject is presented to you for an urgent recommendation to Congress for action.

THE MONETARY STOCK.

A compilation of the complete statistics relating to the monetary situation on June 30, 1898, gives the results exhibited in the subjoined table:

Kind.	In Treasury and mints.	In circulation.	Total stock.
Gold coin and bullion.....	\$203,564,817	\$657,950,463	\$861,514,780
Silver dollars and bullion.....	502,887,893	58,482,968	561,350,859
Fractional silver coin.....	12,070,690	64,056,920	76,127,610
Total metallic.....	718,502,900	780,490,349	1,498,993,249
United States notes.....	62,111,994	234,560,022	346,681,016
Treasury notes of 1890.....	2,900,848	98,306,437	101,207,280
National-bank notes.....	4,909,189	222,990,988	227,900,177
Gold certificates.....	1,608,560	35,811,589	37,420,149
Silver certificates.....	8,429,994	390,126,510	398,556,504
Currency certificates.....	1,110,000	25,565,000	26,675,000
Total paper.....	81,070,580	1,057,869,546	1,138,440,126
Aggregate.....	799,573,480	1,837,859,895	2,637,433,375

The estimated increase in the stock of gold is no less than \$165,244,238, a change without precedent in the history of the country. The nearest approach to this rate of accumulation is found in the year ending June 30, 1881, when the additions to the stock of gold in the country amounted to \$126,000,000. In both instances is the result plainly traced to important events in legislative history; at the earlier period to the resumption of specie payments, and now to the reestablishment of faith in the permanence of the gold standard.

* * * * *

THE COINAGE.

While the recent heavy importations of gold, mostly in the form of bullion, have largely increased the relative amount of uncoined gold in the Treasury, the holdings of coin have been sufficient to meet all demands, and there has been no inconvenience in consequence of the change. The capacity of the mints, unless they happen to be temporarily overtaxed by other coinages, is at all times ample for the handling of whatever gold bullion may be brought to them.

* * * * *

Year.	In Treasury.	In circulation.	Total stock.	Year.	In Treasury.	In circulation.	Total stock.
1884.....	\$29,474,161	\$45,706,940	\$75,181,101	1892.....	\$12,551,498	\$64,916,209	\$77,467,707
1885.....	22,641,894	51,328,208	74,970,100	1893.....	13,496,416	64,100,206	77,596,621
1886.....	26,869,745	48,183,654	75,053,399	1894.....	16,809,712	58,244,769	75,054,481
1887.....	24,964,219	50,414,706	75,398,925	1895.....	14,882,337	61,409,543	76,291,880
1888.....	24,758,696	52,020,975	76,789,671	1896.....	15,126,483	60,228,298	75,354,781
1889.....	23,864,841	52,931,352	76,796,193	1897.....	13,455,175	61,176,415	74,631,590
1890.....	20,565,709	56,311,846	76,876,555	1898.....	9,196,708	66,587,940	75,784,648
1891.....	16,846,620	59,664,446	76,511,066				

TRUST FUNDS.

Bonds amounting to \$22,886,900 were deposited during the year to secure the circulating notes of national banks, as against \$33,157,050 withdrawn. The fresh deposits of bonds for the security of public moneys were \$33,328,000, and the withdrawals \$19,417,000.

Kind of bonds.	Rate of interest.	To secure circulation.	To secure deposits.	Total.
	<i>Per cent.</i>			
Funded loan of 1891, continued	2	\$22,260,500	\$1,459,500	\$23,720,000
Funded loan of 1907	4	147,728,000	18,219,000	165,947,000
Loan of 1925	4	28,206,150	5,732,000	33,938,150
Loan of 1904	5	18,341,150	5,080,000	23,421,150
Bonds issued to Pacific railroads	6	3,665,000	861,000	4,526,000
Total		220,201,400	30,851,500	251,052,900

REDEMPTION OF NATIONAL-BANK NOTES.

The presentations of national-bank notes for redemption amounted for the year to \$97,112,000, as compared with \$113,574,000 for the year preceding. With the increase of force provided for by Congress it has been possible to keep the work of counting and assorting from falling in arrears, and it has not been necessary, as was formerly the case, to call upon the general force of the office or upon the Department for assistance.

The total expenses for the year, including \$34,337.93 paid as charges for transportation, were \$125,924.35, an increase of \$862.62 over the year before. The annual assessment for the expenses of redemption, which has just been made, is at the rate of \$1.29646 for each \$1,000 of notes redeemed.

Deposits aggregating \$22,760,920.50 were made during the year for the retirement of national-bank notes, the largest amount received for that purpose in any year since 1889. Of this total \$18,800,530 was deposited for the reduction of the circulation of banks continuing in business. These unusual operations were due chiefly to the maturity of a large block of Pacific railroad bonds, of which many were held to secure circulating notes. There was in consequence a considerable contraction of the bank-note circulation, but this was later counteracted. Since the appearance of the new 3 per cent bonds on the market, at quotations which make them unusually attractive as a basis for the issue of bank notes, the volume of this circulation has been expanding at a rate without precedent in recent years. This increase of material, which will in due time require renovation or withdrawal, will not fail to add to the work of the branch of this office engaged in the redemption of bank notes.

No. 19.—AVAILABLE ASSETS AND NET LIABILITIES OF THE TREASURY JUNE 30, 1897 AND 1898.

	June 30, 1897.		June 30, 1898.	
ASSETS.				
Gold:				
Coin	\$153, 109, 225. 57		\$106, 930, 732. 76	
Bullion	25, 540, 102. 00		96, 633, 584. 14	
		\$178, 649, 327. 57		\$203, 564, 316. 90
Silver:				
Dollars	400, 053, 461. 00		405, 022, 550. 00	
Fractional coin	16, 201, 959. 73		12, 070, 690. 02	
Bullion	104, 596, 442. 69		97, 845, 342. 97	
		520, 851, 863. 42		514, 938, 582. 99
Paper:				
United States notes	100, 726, 394. 00		62, 111, 994. 00	
Treasury notes of 1890	31, 397, 763. 00		2, 900, 843. 00	
National bank notes	5, 123, 683. 16		4, 909, 189. 38	
Gold certificates	1, 496, 830. 00		1, 608, 560. 00	
Silver certificates	17, 630, 192. 00		8, 429, 994. 00	
Currency certificates	1, 380, 000. 00		1, 110, 000. 00	
		157, 754, 862. 16		81, 070, 580. 38
Other:				
Minor coin	1, 345, 405. 07		1, 247, 987. 32	
Fractional currency	694. 75		37. 09	
Deposits in national banks	15, 958, 733. 82		38, 743, 017. 17	
Bonds and interest paid	203, 490. 44		42, 214. 32	
		17, 508, 324. 08		40, 033, 255. 90
Aggregate		874, 764, 377. 23		839, 606, 736. 17
LIABILITIES.				
Agency account:				
Outstanding warrants and checks	1, 807, 738. 10		2, 562, 640. 43	
Disbursing officers' balances	20, 596, 551. 37		40, 016, 758. 44	
Post Office Department account	8, 990, 811. 64		5, 129, 672. 30	
Bank-note 5 per cent redemption fund	7, 721, 065. 52		8, 568, 194. 06	
Other deposit and redemption accounts	4, 713, 055. 65		10, 187, 894. 81	
		38, 829, 222. 28		66, 465, 160. 04
General account:				
Gold certificates	38, 782, 169. 00		37, 420, 149. 00	
Silver certificates	375, 479, 504. 00		398, 556, 504. 00	
Currency certificates	62, 340, 000. 00		28, 675, 000. 00	
Treasury notes of 1890	114, 867, 280. 00		101, 207, 280. 00	
Balance	244, 466, 201. 95		209, 282, 643. 13	
		835, 935, 154. 95		773, 141, 576. 13
Aggregate		874, 764, 377. 23		839, 606, 736. 17

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REPORT OF THE COMPTROLLER OF THE CURRENCY.

MONETARY SYSTEMS AND APPROXIMATE STOCKS OF MONEY IN THE
PRINCIPAL COUNTRIES OF THE WORLD.

Through the courtesy of the Director of the Mint the Comptroller is enabled to present data relative to the monetary standards, ratios of gold to full legal-tender and limited-tender silver, the stocks of gold, silver, and uncovered paper, and the per capita of gold, silver, and paper in the principal countries of the world in 1898. Statistics are shown relative to thirty-seven countries having an aggregate population of 1,311,400,000. The gold held in these countries aggregates \$4,619,000,000; silver, \$3,977,500,000, and uncovered paper, \$2,322,800,000. Compared with the returns in 1897 there is an increase in gold of \$259,400,000. The amount held by the United States is \$925,100,000, an increase since 1897 of \$228,800,000; Russia has increased her supply \$169,700,000; Austria-Hungary, \$79,300,000; France, \$38,600,000; Germany, \$14,000,000, and the South American republics, \$12,500,000. The amount of gold held in the United Kingdom decreased from \$584,000,000 in 1897 to \$438,000,000, a reduction of \$146,000,000. Egypt apparently has \$99,300,000 less than a year ago, Roumania \$24,100,000 less, and Belgium \$5,000,000 less.

The changes in the amount of silver are not material, in the aggregate, as compared with 1897. Apparently there has been a falling off, but the decrease shown is mainly due to the revised estimate of the quantity of this metal in India, which is now stated to be \$592,100,000. In 1897 the estimate submitted by a different authority was \$950,000,000. There is noticed a reduction of \$33,600,000 in the amount of silver in Japan, \$24,100,000 in France, and \$12,000,000 in Belgium. The stock in the United States has increased \$3,700,000, in Russia \$54,200,000, and in Austria-Hungary \$81,800,000.

The stock of uncovered paper has apparently been reduced \$243,000,000. In 1897 the amount of uncovered paper in Russia was \$467,200,000, and none in 1898; in Austria-Hungary the reduction has been \$91,400,000, in the United States \$70,900,000, and in Portugal \$10,800,000. The principal increase in uncovered currency is as follows: The South American Republics, \$200,600,000; India, \$80,300,000; Spain, \$34,500,000; Roumania, \$21,900,000; Sweden, \$8,700,000; Italy, \$8,500,000; Germany, \$8,400,000, and the Netherlands, \$7,600,000.

By reference to the table it will be noticed that the average per capita of gold is \$3.52, silver \$3.03, and uncovered paper \$1.77. Hawaii has the largest amount of gold per capita, namely, \$40; the South African Republic is second, with \$32.44; Australasia, \$26.42; France, \$21.06; Cape Colony, \$20.83; Germany, \$12.78; United States, \$12.42; United Kingdom, \$11.01. The maximum per capita of silver, \$62.05, is in the Straits Settlements; the next largest per capita is \$38.68, in Siam; \$11.45 in the Netherlands, \$10.90 in France, \$10 in Hawaii, and \$8.56 in the United States.

The largest per capita of uncovered paper is \$20.01, in the South American States; Greece and Belgium follow with \$12.75 and \$12.17, respectively. The last column of the table shows the per capita of gold, silver, and uncovered paper combined in each of the countries named. The range is from a maximum of \$62.05 in the Straits Settlements to a minimum of \$1.94 in Cuba.

MONETARY SYSTEMS AND APPROXIMATE STOCKS OF MONEY IN THE AGGREGATE
AND PER CAPITA IN THE PRINCIPAL COUNTRIES OF THE WORLD IN 1898.

Countries.	Monetary system.*	Ratio between gold and full tender silver.	Ratio between gold and limited tender silver.	Population.	Stock of gold.	Stock of silver.			Uncovered paper.	Per capita.			
						Full tender.	Limited tender.	Total.		Gold.	Silver.	Pa-per.	Total.
United States	G and S	1 to 15.98	1 to 14.95	74.5	Mil. \$925.1	Mil. \$561.5	Mil. \$76.7	Mil. \$638.2	Mil. \$326.1	\$1242	\$8.56	\$4.38	\$25.38
United Kingdom	G	14.28	14.28	39.8	b438.0	.....	e121.7	b121.7	b112.0	11.01	3.06	2.91	16.88
France	G and S	15 1/2	14.38	38.5	b810.6	b373.5	b46.3	b419.8	b124.6	21.06	10.90	3.23	35.19
Germany	G	13.957	14.38	52.3	e668.5	d98.2	d117.6	d212.8	b132.2	21.78	4.07	2.53	19.38
Belgium	G and S	15 1/2	14.38	6.5	e30.0	e40.0	e5.0	e45.0	b79.1	4.62	6.92	12.17	23.71
Italy	do	15 1/2	14.38	31.3	b96.5	b16.0	b26.5	b42.5	b19.5	3.08	1.36	5.41	9.85
Switzerland	do	15 1/2	14.38	3	f24.0	.....	f10.7	f10.7	b14.3	8.00	3.56	4.77	16.33
Greece	do	15 1/2	14.38	2.4	e5.5	.....	e1.5	b30.6	.....	21	.....	.....	12.75
Spain	do	15 1/2	14.38	18	g45.5	.....	g49.8	g49.8	g137.5	2.53	2.76	7.64	12.93
Portugal	G	.....	14.08	5.1	b5.2	.....	b6.1	b39.0	1.02	1.30	7.64	9.88	.....
Roumania	G and S	.....	.....	5.4	b14.5	.....	b10.6	b10.6	b33.7	2.69	1.96	6.24	10.49
Serbia	do	.....	.....	2.3	b1.2	.....	b2.7	b2.7	b2.7	.....	53	1.17	1.17
Austria-Hungary	G	.....	13.69	45.4	b251.8	b48.5	b97.0	b145.5	b96.2	5.55	3.20	1.90	10.65
Netherlands	G and S	15 1/2	15	4.9	b21.9	b52.7	b3.4	b56.1	b45.5	4.47	11.45	9.28	25.20
Norway	G	.....	14.88	2	b7.8	.....	b2.3	b2.3	b2.8	3.90	1.15	1.90	6.95
Sweden	do	.....	14.88	5	b8.6	.....	b5.7	b5.7	b27.7	1.72	1.14	5.54	8.40
Denmark	do	.....	14.88	2.3	b15.3	.....	b5.4	b5.4	b7.0	0.65	2.35	3.04	12.04
Russia	do	15 1/2	12.90	129.2	b756.6	b83.4	b45.0	b128.4	.....	5.96	.....	.....	6.85
Turkey	G and S	15 1/2	15.875	24.1	e50.0	e30.0	d10.0	e40.0	.....	2.07	1.99	.....	3.73
Australasia	G	.....	14.28	5	b132.1	.....	b7.0	b7.0	b22.5	26.42	1.40	4.50	32.42
Egypt	do	.....	15.68	9.7	e30.0	.....	b6.4	b6.4	.....	3.09	.....	.....	3.75
Mexico	S	16 1/2	.....	13	e8.6	b106.0	.....	b106.0	b4.0	67	8.15	3.07	11.49
Central American States	do	.....	.....	3.3	b1.3	b19.0	.....	b19.0	b8.4	39	5.76	2.54	8.69
South American States	S	15 1/2	.....	37.5	b77.5	e25.0	e10.0	e35.0	b750.6	2.07	.....	.....	23.01
Japan	G and S	82.36	.....	45	b79.9	b41.9	b18.5	b60.4	.....	1.77	1.34	.....	3.11
India	do	15	.....	296.9	.....	b592.1	.....	b592.1	b117.8	.....	1.99	.....	2.39
China	S	.....	.....	383.3	.....	e750.0	.....	e750.0	.....	.....	1.96	.....	1.96
Straits Settlements	do	.....	.....	3.9	.....	d240.0	d2.0	d242.0	.....	62.05	.....	.....	62.05
Canada	G	.....	14.28	5.3	b16.0	.....	b5.0	b5.0	b35.0	3.01	.....	.....	10.56
Cuba	G and S	15 1/2	.....	1.8	e2.0	.....	e1.5	e1.5	.....	1.11	.....	.....	1.94
Haiti	do	15 1/2	.....	1	b4.0	b3.0	e1.5	b4.5	b4.1	4.00	4.50	4.10	12.60
Bulgaria	do	15 1/2	14.88	3.3	e1.0	e8.4	e3.4	e8.8	.....	30	2.06	.....	2.36
Siam	S	.....	.....	5	b20.0	b193.4	.....	b193.4	.....	4.00	38.08	.....	42.08
Hawaii	G and S	15.98	14.85	.....	b4.0	1.0	.....	b1.0	.....	40.00	10.00	.....	50.00
Cape Colony	G	.....	14.28	1.8	e37.5	.....	e1.0	e1.0	.....	20.83	.....	.....	21.38
South African Republic	do	.....	14.28	.....	e29.2	.....	e1.2	e1.2	.....	32.44	1.32	.....	33.77
Finland	do	.....	15.50	2.5	g4.8	.....	g4.4	g4.4	g9.4	1.65	.....	.....	5.42
Total	.....	.....	.....	1,811.4	4,619.0	8,276.1	701.4	8,977.5	2,322.8	3.52	8.08	1.77	8.32

* G (gold), S (silver).

a Nov. 1, 1898; all other countries Jan. 1, 1898.

b Information furnished through United States representatives.

c Money and Prices, State Department, United States.

d Haupt.

e Estimate, Bureau of the Mint.

f C. Cramer Frey.

g Bulletin de Statistique, Paris, January, 1898.

h Except Venezuela, Chile, and Peru.

i Includes Aden, Perim, Ceylon, Hongkong, Labuan, and Straits Settlements.

Charles G. Dawes

Comptroller of the Currency.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

REPORT OF THE COMMISSIONER OF INTERNAL REVENUE.

TREASURY DEPARTMENT,
OFFICE OF COMMISSIONER OF INTERNAL REVENUE,
Washington, D. C., November 1, 1898.

SIR: In conformity with law, and in compliance with your instructions, I have the honor to submit the following report of the operations of the Bureau of Internal Revenue for the fiscal year ended June 30, 1898, together with certain additional information relating to the work performed, and the receipts from the various sources of internal revenue, during the months of July, August, and September of the current fiscal year.

* * * * *

COLLECTIONS FOR THE FISCAL YEAR ENDED JUNE 30, 1898.

It was estimated in the last annual report of the Commissioner of Internal Revenue that the receipts from all sources of internal revenue would reach the sum of \$155,000,000. It affords me pleasure to say that the actual receipts were \$170,866,819.36, exceeding the estimate by \$15,866,819.36.

RECEIPTS FOR THE PAST TEN FISCAL YEARS.

Fiscal year ended—	
June 30, 1898.....	\$170,866,819.36
June 30, 1897.....	146,619,593.47
June 30, 1896.....	146,830,615.66
June 30, 1895.....	143,246,077.75
June 30, 1894.....	147,168,449.70
June 30, 1893.....	161,004,989.67
June 30, 1892.....	153,867,544.35
June 30, 1891.....	146,035,415.97
June 30, 1890.....	142,594,696.57
June 30, 1889.....	130,894,434.20

ESTIMATED RECEIPTS FOR THE CURRENT FISCAL YEAR.

The aggregate receipts for the months of July, August, and September, 1898, from all sources of internal revenue, were \$71,989,457.31. For the same months in 1897 the receipts were \$43,792,636.62, a comparison showing an increase of \$28,196,820.69 in favor of the first three months of the current fiscal year.

This large increase, however, is abnormal, and may be regarded as arising from the large collections incident to carrying into effect the new lines of taxation provided for in the act of June 13, 1898. Therefore I am of the opinion that any estimate based upon the above figures should be very carefully considered, and great weight should be given to such reduction in the receipts as may be reasonably anticipated during the remaining nine months of the current fiscal year. In view of these conditions, I do not deem it wise to fix the estimate for the receipts from all sources of internal revenue for the fiscal year ending June 30, 1899, higher than \$270,000,000.

* * * * *

STAMP DIVISION.

NEW CLASSES OF STAMPS ADDED UNDER RECENT ACTS OF CONGRESS.

Case stamps with attached bottle stamps, to be used in the bottling of distilled spirits under the provisions of the act of March 3, 1897, have been added to the list of case stamps heretofore prepared, as follows:

Three gallons for cases containing 240 bottles of one-tenth pint each; 3 gallons for cases containing 120 bottles of one-fifth pint each; and 3 gallons for cases containing 6 bottles of one-half gallon each, with a strip stamp for each bottle attached to case stamps covering the denominations aforesaid.

Under the provisions of "An act to provide ways and means to meet war expenditures, and for other purposes," approved June 13, 1898, increasing the rate of tax on fermented liquors, tobacco, snuff, cigars, and cigarettes the stamps heretofore issued to denote the payment of the taxes on said articles were imprinted "series 1898," to denote the new rate of tax, in compliance with the terms of said act, and to provide against any interruption of current business.

Designs are now being prepared by the Bureau of Engraving and Printing for new stamps to be issued in lieu of the imprinted stamps now furnished to brewers and manufacturers of tobacco and cigars.

Special-tax stamps representing the additional special taxes imposed by said last-named act were prepared and issued as follows:

Brokers, \$50; pawnbrokers, \$20; commercial brokers, \$20; custom-house brokers, \$10; proprietors of theaters, museums, and concert halls in cities having more than 25,000 population, \$100; proprietors of circuses, \$100; proprietors or agents of all other public exhibitions or shows for money, \$10; proprietors of bowling alleys and billiard rooms, \$5 for each alley or table; dealers in leaf tobacco, annual sales not exceeding 50,000 pounds, \$6; dealers in leaf tobacco, annual sales exceeding 50,000 pounds and not exceeding 100,000 pounds, \$12; dealers in leaf tobacco, annual sales exceeding 100,000 pounds, \$24; dealers in tobacco whose annual sales exceed 50,000 pounds, \$12; manufacturers of tobacco, annual sales not exceeding 50,000 pounds, \$6; manufacturers of tobacco, annual sales exceeding 50,000 and not exceeding 100,000 pounds, \$12; manufacturers of tobacco, annual sales exceeding 100,000 pounds, \$24; manufacturers of cigars, annual sales not exceeding 100,000 cigars, \$6; manufacturers of cigars, annual sales exceeding 100,000 and not exceeding 200,000 cigars, \$12; manufacturers of cigars, annual sales exceeding 200,000 cigars, \$24; manufacturers of mixed flour, \$12.

Under the provisions of the said act of June 13, 1898, imposing a tax upon documents, instruments, and things mentioned and described in Schedule A, and medicines, preparations, and proprietary articles described in Schedule B of said act, documentary and proprietary stamps denoting the payment of the taxes therein imposed were prepared and issued of the following denominations:

Documentary, $\frac{1}{2}$ cent, 1 cent, 2 cents, 3 cents, 4 cents, 5 cents, 10 cents, 25 cents, 40 cents, 50 cents, 80 cents, \$1, \$3, \$5, \$10, \$30, and \$50.

Proprietary, $\frac{1}{8}$ cent, $\frac{1}{4}$ cent, $\frac{3}{8}$ cent, $\frac{5}{8}$ cent, 1 cent, $1\frac{1}{2}$ cents, $1\frac{3}{4}$ cents, 2 cents, $2\frac{1}{2}$ cents, $3\frac{1}{2}$ cents, 4 cents, 5 cents.

Provision has also been made for the printing of proprietary stamps from private dies, prepared from designs furnished by proprietors of proprietary articles, under the provisions of section 9 of said act.

In compliance with the terms of said act coupon stamps, representing the payment of the tax therein imposed on mixed flour, with coupons, representing the tax on one-eighth, one-fourth, one-half, and 1 barrel, have been prepared and issued.

TOBACCO DIVISION.

During the fiscal year ended June 30, 1898, two separate acts of Congress were passed which affected the tobacco industry. (Reference is made to the act of July 24, 1897, and the act of June 13, 1898.)

Section 3 of the act of June 13, 1898, levies a tax of 12 cents per pound upon all tobacco and snuff, however prepared, manufactured, and sold, or removed for consumption or sale; and in lieu of the 2, 3, and 4 ounce packages of tobacco and snuff, packages containing 1½ ounces, 2½ ounces, and 3½ ounces, respectively, have been substituted, and this statute provides that smoking tobacco may be put up in packages containing 1 ounce.

THE PRESENT RATE OF TAX ON CIGARS AND CIGARETTES.

Section 3 of the act approved June 13, 1898, levies a tax of \$3.60 per thousand on cigars of all descriptions made of tobacco, or of any substitute therefor, and weighing more than 3 pounds per thousand; and \$1 per thousand on cigars made of tobacco, or any substitute therefor, weighing not more than 3 pounds per thousand; and a tax of \$3.60 per thousand on cigarettes made of tobacco, or any substitute therefor, weighing more than 3 pounds per thousand; and \$1.50 per thousand on cigarettes, made of tobacco or any substitute therefor, and weighing not more than 3 pounds per thousand.

It will be seen that during the present fiscal year a tax equal to 20 per cent additional has been levied upon cigars and large cigarettes.

The receipts for the fiscal year 1897 from cigars were \$12,189,507.29, while the receipts for the fiscal year ended June 30, 1898, were \$13,626,049.71; showing an actual increase in production and consumption; the tax remaining the same, \$3 per thousand.

The increase in receipts for 1898 over the year 1897 amounted to \$1,436,542.42. With the increased rate of tax of 60 cents per thousand, the receipts from this source for the current fiscal year should, with a normal condition in the trade and manufacture, amount to \$16,350,000.

The receipts of the office show that during the fiscal year ended June 30, 1898, \$405,676.88 tax was collected under the act of July 24, 1897, on small cigars.

The receipts from tax levied on cigarettes weighing more than 3 pounds per thousand for 1897 was \$4,748.13, while the receipts for 1898 from the same source was \$6,693.47.

The only advantage of levying tax on cigarettes weighing more than 3 pounds per thousand equal to the tax levied on large cigars is that it confines the manufacture of cigarettes to legitimate channels.

Regulations governing the packing and removal for sale of small cigars weighing not more than 3 pounds per thousand have been made

since the approval of the act of July 24, 1897. As provided in that act, these cigars are required to be put up in packages containing 10, 20, 50, or 100 cigars, respectively, and properly stamped and the stamps canceled before the cigars are removed from the place of manufacture.

The regulation relating to affixing and canceling stamps on packages of cigarettes applies to small cigars. Stamps are issued in denominations of 10, 20, 50, and 100, the same as for cigarettes.

Increasing the rate of taxes had the effect of forcing upon the market a large quantity of tobacco which would, in the absence of new legislation, have found its way to the consumer in the usual course of trade.

The trade is largely governed by the demands of the consumers of tobacco, and while it is a fact that manufacturers of late years sell small packages rather than large, and make more frequent sales of tobacco and do not in consequence keep large quantities of old tobacco on their floors, yet it is understood that dealers generally ordered larger quantities of tobacco than formerly, in anticipation of increased taxes. And by reason of these circumstances the market has been to some extent overstocked and the receipts for the present fiscal year from tobacco must not be expected to reach an amount equal in ratio to the amount of the increased tax imposed by the act of June 13, 1898.

It is estimated, however, that the receipts from manufactured tobacco and snuff will be increased over those of last year at least 50 per cent, and that \$27,500,000 will be collected from this source alone, and that \$16,350,000 will be collected from cigars, and that \$5,000,000 will be collected from cigarettes. The total collections on manufactured tobacco, snuff, cigars, and cigarettes will amount to at least \$48,850,000.

SPECIAL TAXES.

Section 26 of the act of October 1, 1890, repealed all special taxes then in force imposed upon dealers in leaf tobacco, dealers in tobacco, manufacturers of tobacco, manufacturers of cigars, and peddlers of tobacco.

Section 4 of the act of June 13, 1898, reimposes special taxes on dealers in leaf tobacco, dealers in tobacco (manufactured tobacco and cigars), manufacturers of tobacco, and manufacturers of cigars, from and after July 1, 1898.

The special taxes imposed on dealers in leaf tobacco and manufacturers of tobacco and manufacturers of cigars in each instance is a graduated tax, the amount of tax to be determined by the quantum of business done during the preceding fiscal year. The minimum rate of tax in each case being \$6; the intermediate rate \$12; while the last, or maximum rate, is \$24.

The rate of tax imposed on dealers in manufactured tobacco, snuff, or cigars, is \$12. This tax is imposed only on persons whose annual sales exceed 50,000 pounds.

There were no special taxes collected during the fiscal year ended June 30, 1898, from these sources.

The following is a statement of the receipts from special taxes imposed by section 4 of the act of June 13, 1898, on tobacco dealers and manufacturers for the first quarter of present fiscal year, ended September 30, 1898:

Occupation.	Amount of taxes paid during—			
	July.	August.	September.	Total.
Dealers in leaf tobacco	\$25,781.00	\$13,862.50	\$3,443.50	\$43,087.00
Dealers in tobacco	9,072.00	4,401.00	567.00	14,040.00
Manufacturers of tobacco	9,204.00	7,024.00	845.00	17,073.00
Manufacturers of cigars	131,933.50	68,734.33	8,305.96	208,973.79
Total	175,990.50	94,021.83	13,161.46	283,173.79

The receipts from tobacco, snuff, cigars, and cigarettes, and from special taxes imposed on tobacco dealers and manufacturers, for the quarter ended September 30 of the present fiscal year, should not be taken alone as the basis from which the yearly receipts from these sources may be determined or closely approximated.

Dealers, anticipating the increased taxes levied by the act of June 13, 1898, on tobacco, snuff, and cigars, purchased in May and June large quantities of these articles in excess of the usual demand, and the withdrawals of tobacco in the months of July, August, and September following, tax paid, during these months, were reduced below the general average, and at least one-fifth of the number of persons and firms who had previously registered as dealers in leaf tobacco, or as manufacturers, anticipating the special taxes imposed on these occupations, closed their business before the taxes accrued.

Six hundred and two tobacco manufacturers have closed since June 1, 1898, nearly all of whom were also cigar manufacturers.

While some persons have retired from business during the present tax year other persons have commenced business under the new conditions, and it is anticipated that there will be an increased supply of manufactured products before the close of the year which will compensate for the reduction in the supply at the beginning of the year.

The second paragraph of section 3 of the act of June 13, 1898, levied an additional tax of 3 cents per pound upon manufactured tobacco and snuff, 30 cents per thousand on cigars, and 25 cents per thousand on cigarettes which were manufactured, imported, and removed from factory or custom-house before the passage of the act, bearing tax stamps affixed to such articles for the payment of taxes thereon, and canceled subsequent to April 14, 1898, and which were held for sale by any person on June 14, 1898, the day succeeding the date of the passage of the act.

This act allowed the dealer having such taxable goods on hand an exemption of one thousand pounds of tobacco or snuff and twenty thousand cigars or cigarettes.

By the provisions of this act the tax was required to be collected by way of assessment against the persons having such goods on hand, and they were required to make returns under oath, in duplicate, as to the quantity of tobacco and snuff and cigars and cigarettes so held on that day.

This office, in proceeding to collect the taxes so levied, prepared a form of return which was required to be made by every person who held such taxable articles for sale on June 14, 1898, in excess of the exemptions stated.

The following is a statement of the amount of taxes so returned and subsequently assessed by the Commissioner, as provided by said act:

ADDITIONAL TAXES ASSESSED.

[Number of dealers making returns, 4,120.]

Kind of article.	Pounds.	Number.	Rate of tax.	Amount of tax.
Manufactured tobacco	23,671,988	.....	3 cents.	\$710,159.68
Snuff.....	1,287,539	.....	3 cents.	38,026.18
Cigars.....	.....	167,465,566	30c. per M.	50,239.67
Cigarettes.....	.....	217,149,360	25c. per M.	54,287.34
Total tax assessed.....	.....	.....	.....	852,712.85

[Returns made by 277 manufacturers of goods stamped at old rate removed from factory after June 13, 1898.]

Kind of article.	Pounds.	Number.	Rate of tax.	Amount of tax.
Manufactured tobacco	554,917	.....	6 cents.	\$33,295.05
Snuff.....	460	.....	6 cents.	27.60
Cigars.....	.....	7,004,016	60c. per M.	4,202.41
Cigarettes.....	.....	960	50c. per M.	.48
Total tax assessed.....	.....	.....	.....	37,525.54

NOTE.—The above tables do not include assessments in third district of New York.

A large number of persons who were dealers in tobacco and cigars on the 14th day of June, 1898, were exempt from payment of any tax so levied for the reason that the quantity of tobacco and cigars subject to tax held by them for sale on that day was not in excess of the exemptions allowed by law.

TOBACCO TAX COLLECTED.

The aggregate amount of taxes collected from tobacco during the fiscal year ended June 30, 1898, was \$36,220,577.24.

The collections were as follows:

Manufactured tobacco, smoking and chewing.....	\$17,657,276.45
Snuff.....	931,869.04
Cigars.....	14,031,726.59
Cigarettes.....	3,599,706.16
Total collections.....	36,220,577.24

This amount includes internal-revenue taxes paid by stamps on imported and domestic manufactured tobacco, but does not include \$9,945.13 miscellaneous collections on tobacco and cigars.

The internal-revenue taxes on imported manufactured tobacco, snuff, cigars, and cigarettes, are the same as on domestic, in addition to import duties levied upon these articles.

There was an increase of collections last fiscal year over the collections of the previous fiscal year amounting to \$5,510,279.82.

INCREASED RECEIPTS.

The increased collections from each item stated were as follows:

Manufactured tobacco	\$2,013,187.70
Snuff.....	135,750.67
Cigars.....	1,842,219.30
Cigarettes.....	1,519,122.15
Total increased receipts.....	5,510,279.82

The following is a statement of the internal-revenue receipts from tobacco for the past ten years:

1889.....	\$31,866,860.42	1894.....	\$28,617,898.62
1890.....	33,958,991.08	1895.....	29,704,907.63
1891.....	32,796,270.97	1896.....	30,711,629.11
1892.....	31,000,493.07	1897.....	30,710,297.42
1893.....	31,889,711.74	1898.....	36,220,577.24

The amount received from special taxes relating to tobacco is included in the above up to the time such taxes were repealed May 1, 1891 (act of October 1, 1890).

Table E, in the Appendix at the close of the bound volume of this report, will show the receipts from this source by fiscal years from September 1, 1862.

COMPARATIVE STATEMENT.

The following exhibits show in detail the receipts for the fiscal year ended June 30, 1898, from tobacco tax as compared with the receipts for the previous fiscal year:

RECEIPTS FROM TOBACCO AND SNUFF.

Manufactured tobacco	\$17,657,276.43
Snuff.....	931,869.04
Total.....	18,589,145.49
Total for year ended June 30, 1897.....	16,440,207.12
Increase in collections.....	2,148,938.37

Of this increase \$2,013,187.70 was from manufactured tobacco, and \$135,750.67 was from snuff.

RECEIPTS FROM CIGARS AND CIGARETTES.

From cigars	\$14,031,726.59
From cigarettes	3,599,705.16
Total.....	17,631,431.75
Total for year ended June 30, 1897.....	14,270,090.30
Increase in collections.....	3,361,341.45

Of this increase \$1,842,219.30 was from cigars, and \$1,519,122.15 was from cigarettes.

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DIVISION OF LAW.

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WAR-REVENUE ACT.

The act of June 13, 1898, known as the war-revenue act, has increased the work in this division.

The new special taxes imposed upon bankers, brokers, pawnbrokers, commercial brokers, custom-house brokers, proprietors of theaters, museums, concert halls, circuses, and proprietors of other public exhibitions or shows for money, also proprietors of bowling alleys and

billiard rooms, which went into effect July 1, necessitated a large correspondence with officers and individuals.

**CIRCULAR LETTER TO COLLECTORS OF INTERNAL REVENUE
RELATIVE TO THE 50-PER-CENT PENALTY.**

Letters addressed to this office from all parts of the United States by persons who had become liable for special taxes under the provisions of the second section of the act of June 13, 1898, and who, having failed to make the prescribed return (Form 11) under oath within the calendar month in which their liability began, had been called upon by collectors to pay 50 per cent in addition to the tax, showed that these persons, while aware of their special-tax liability under the new (war-revenue) act, had no knowledge or notice that it was their duty, under section 3237, Revised Statutes, amended, to make sworn return regarding their business to the collector not later than the last day of the calendar month in which their liability began.

The war-revenue act gave them full notice as to their special-tax liability, but gave them no information of the requirement that they should make formal sworn return to the collector within the time prescribed by section 3237, Revised Statutes, as amended by section 53 of the act of October 1, 1890.

There being nothing in the new law specially calling the attention of the public to the provisions of section 3237, Revised Statutes, amended, as applicable to these new classes of special-tax payers, it was considered unjust to regard the provisions of section 3176, Revised Statutes, as requiring imperatively the addition of 50 per cent to the taxes due in these cases, as if they were on the same footing with special-tax payers under the old law, who had for many years complete information as to what is required of them, not only through published official notices but also through the express terms of the law itself and the regulations and instructions issued thereunder.

A circular letter was issued September 3, 1898, and published in Treasury Decisions, No. 10, page 489 (No. 20001), authorizing collectors for this time, in all cases of persons who had neither notice nor information that they were required to make sworn return within the calendar month when their liability began, and who, consequently, failed to make such return, to report the facts for assessment of the special tax without the 50-per-cent penalty. This was not to be extended to cases thereafter arising, and applies only to the new class of special-tax payers created by the war-revenue act.

* * * * *

RULINGS UNDER WAR-REVENUE ACT.

As this act went into effect so soon after its passage and was so widespread in its scope, touching the business interests of the country at so many points, this office was required to make decisions on a variety of subjects on a short notice. Many questions involved intricate points of law and acquaintance with commercial usage. An additional clerical force competent for the work could not be immediately secured. Many decisions had to be rendered almost impromptu, and, under the circumstances, it is possible that the interpretations given to some points of the law are not in accord with what Congress intended. The idea has been to carry out the law according to its import.

The following is the list of some of the rulings that were made, to

which attention is called, with a view that, if incorrect, Congress may be requested to enact such additional legislation as may be necessary to remove ambiguities or more fully express the intention. At a later period I shall present to you for transmission to Congress such amendments to the law as may appear to be desirable, based upon the experience of the past few months.

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REPORT OF THE DIRECTOR OF THE MINT.

TREASURY DEPARTMENT.

BUREAU OF THE MINT,

Washington, D. C., November 21, 1898.

SIR: I have the honor to herewith submit the twenty-sixth annual report of the Director of the Mint, covering the operations of the mints and assay offices of the United States for the fiscal year ended June 30, 1898, with such available statistics and information as may be valuable in connection therewith.

DEPOSITS OF GOLD BULLION, FISCAL YEAR 1898.

The deposits of gold bullion at the mints and assay offices of the United States during the fiscal year ended June 30, 1898, were the largest in the history of this country. Exclusive of redeposits, they were of the value of \$147,693,194.83, against \$87,003,337.71 in the previous year. Only once before have the original deposits of twelve months exceeded the record of 1896-97, being in the year ended June 30, 1881, when the resumption of specie payments and a heavy favorable balance of trade caused extraordinary imports of foreign coin and bullion. The original deposits in that year were \$130,833,102.45.

Deposits of bullion may be made at a mint or assay office for conversion into bars for the convenience of the depositor. When delivered to him and disposed of by him they frequently find their way to another one of the Government institutions and are there classified as redeposits. The same applies to transfers of bullion between the mints and assay offices.

The aggregate of all deposits, including redeposits, is the total of metal operated upon in the year by the mint service. This total of gold bullion received in the fiscal year ended June 30, 1898, was 10,682,301.457 standard ounces, of the value of \$198,740,492.23, an increase of 3,742,880.800 standard ounces, of the value of \$69,634,991.70, over the deposits reported for the fiscal year 1897.

The deposits of domestic bullion amounted to 3,756,110.230 standard ounces, of which 937,194.467 standard ounces were in a crude condition, direct from the miners operating in the various States, 804,149.610 standard ounces of refinery bars (less than .992 in fineness), and 2,014,766.153 standard ounces of refined bars (fineness .992 and over), being bullion received from private refineries, chlorination, and cyanide works.

Uncurrent and mutilated domestic gold coin received for recoinage contained 63,837.961 standard ounces, of the coinage value in new coin of \$1,187,682.99. Of this amount 29,272.300 standard ounces were received on transfers from the Treasury and 34,565.661 standard ounces were received over the counter at the various mints and assay offices.

Foreign bullion containing 1,423,158.641 standard ounces were also received, of the value of \$26,477,370.06, of which 215,737.881 standard ounces represents the deposits of unrefined bullion and 1,207,420.760 standard ounces of refined bullion.

The following table shows the countries from which this bullion was received:

Country.	Unrefined.	Refined.
	<i>Standard ozs.</i>	<i>Standard ozs.</i>
Klondike	40,767.831	.....
British Columbia	60,824.513	.....
Mexico	72,371.201	.....
Central America.....	22,263.719	.....
South America	14,414.778	.....
West Indies	57.519	.....
South Africa.....	18.094	.....
Australasia.....	24.915	27.602
New Zealand .....	.....	102,672.987
England .....	.....	985,639.530
France.....	.....	97,010.376
Germany .....	.....	21,670.265
Asia.....	62.144	.....
China.....	17.947	.....
Unknown.....	4,914.620	.....
Total	215,737.881	1,207,420.760

Foreign gold coin containing 2,537,541.684 standard ounces, of the coining value in United States money of \$47,210,077.84, were deposited.

* * * * *

VALUE OF THE ORIGINAL DEPOSITS AND REDEPOSITS OF GOLD BULLION AT THE MINTS AND ASSAY OFFICES OF THE UNITED STATES, DURING THE FISCAL YEARS 1897 AND 1898, AND THE INCREASE OR DECREASE OF THE SAME DURING THE LATTER YEAR.

Classification of deposits of gold.	Fiscal year.		Increase, 1898.	Decrease, 1898.
	1897.	1898.		
ORIGINAL DEPOSITS.				
Domestic:				
Unrefined.....	\$17,515,404.81	\$17,436,176.15	.....	\$79,228.66
Refinery bars.....	9,928,889.78	14,900,922.96	\$5,062,533.25	.....
Refined bars.....	33,174,445.23	37,484,021.44	4,309,576.21	.....
Domestic coin:				
Treasury transfers	618,742.71	544,600.92	.....	74,141.79
Purchased.....	396,571.70	643,062.07	246,510.37	.....
Foreign bullion:				
Unrefined.....	2,818,100.39	4,013,728.02	1,195,627.63	.....
Refined	6,563,420.62	22,463,642.04	15,910,221.42	.....
Foreign coin.....	13,188,018.86	47,210,077.84	34,022,063.98	.....
Jewelers' bars, old plate, etc.....	2,810,248.66	2,936,943.87	126,694.71	.....
Total original deposits.	87,003,337.71	147,693,194.83	60,843,227.57	153,370.45

VALUE OF THE ORIGINAL DEPOSITS AND REDEPOSITS OF GOLD BULLION AT THE MINTS AND ASSAY OFFICES OF THE UNITED STATES, ETC.—Continued.

Classification of deposits of gold.	Fiscal year.		Increase, 1898.	Decrease, 1898.
	1897.	1898.		
REDEPOSITS.				
Fine bars.....	3, 008, 109. 73	15, 287, 364. 47	12, 284, 254. 74	.....
Mint bars.....	30, 026, 397. 37	22, 919, 165. 24		7, 107, 232. 13
Unparted bars.....	9, 072, 655. 73	12, 840, 767. 09	3, 768, 111. 97	
Total redeposits	42, 102, 162. 82	51, 047, 297. 40	16, 052, 366. 71	7, 107, 232. 13
Total gold received....	129, 105, 500. 53	198, 740, 492. 23	69, 634, 991. 70	.....

* * * * *

DEPOSITS OF SILVER BULLION, FISCAL YEAR 1898.

Including silver contained in gold deposits, the deposits and purchases of silver bullion during the fiscal year ended June 30, 1898, exclusive of redeposits, amounted to 11,396,687.62 standard ounces, against 8,138,816.99 standard ounces in the previous year.

Deposits of silver bullion may be made at a mint or assay office for conversion into bars, and these, when delivered to the depositor and disposed of by him, may find their way to another one of the Government institutions. These bars, bearing the stamp of the mint service, are then classified as redeposits.

The aggregate of all deposits and purchases, including redeposits, at all of the mints and assay offices shows the total operations of the mint service. This aggregate of silver received in the fiscal year was 14,459,645.52 standard ounces.

The deposits of domestic bullion amounted to 5,572,500.41 standard ounces, of which 677,817.18 standard ounces were in a crude condition direct from the miners operating in various States, 136,652.26 standard ounces of refinery bars (less than .992 in fineness), and 4,758,030.97 standard ounces in refined bars (fineness .992 and over) being bullion received from private refineries, chlorination, and cyanide works.

Uncurrent and mutilated domestic silver coins were received for recoinage containing 4,677,952.93 standard ounces of the coinage value in silver dollars equal to \$5,443,436.13, or the coinage value in new subsidiary silver coins equal to \$5,820,159.16. Of this amount 4,673,600.62 standard ounces were received by transfer from the Treasury, and 4,352.31 standard ounces were received over the counter at the various mints and assay offices.

Foreign silver bullion, unrefined, containing 544,062.01 standard ounces was received.

The following table shows the countries from which this bullion was received:

Country.	Amount.
	<i>Standard ozs.</i>
Klondike	11,361.06
British Columbia	6,379.48
Mexico	513,699.19
South America	3,402.23
Central America	7,835.90
South Africa	.91
Australasia	.74
Asia	.67
China	.76
West Indies	253.07
Unknown	1,123.01
Total	544,063.01

Foreign silver coins containing 72,305.11 standard ounces were deposited.

The following tables show the deposits and redeposits of silver bullion, by weight and coining value, during the fiscal year 1898:

WEIGHT OF THE ORIGINAL DEPOSITS AND REDEPOSITS OF SILVER BULLION AT THE MINTS AND ASSAY OFFICES OF THE UNITED STATES DURING THE FISCAL YEARS 1897 AND 1898, AND THE INCREASE OR DECREASE OF THE SAME DURING THE LATTER YEAR.

Classification of deposits of silver.	Fiscal year.		Increase, 1898.	Decrease, 1898.
	1897.	1898.		
ORIGINAL DEPOSITS.				
Domestic:	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>
Unrefined	584,004.61	677,817.18	93,812.57	
Refinery bars	139,688.93	136,652.26		3,036.67
Refined bars	3,626,290.15	4,758,030.97	1,131,740.82	
Domestic coin:				
Treasury transfers	2,450,522.55	4,673,600.62	2,223,078.07	
Purchased	3,690.98	4,129.59	438.61	
Trade dollars purchased	178.70	222.72	44.02	
Foreign bullion:				
Unrefined	677,801.04	544,063.01		133,738.03
Refined	17,849.02			17,849.02
Foreign coin	112,396.25	72,305.11		40,091.14
Jewelers' bars, old plate, etc.	526,394.76	529,867.16	3,472.40	
Total original deposits	8,138,816.99	11,396,687.63	3,452,596.49	191,715.86
REDEPOSITS.				
Fine bars	21,862.95	2,936,085.45	2,914,172.50	
Mint bars	97,022.65			97,022.65
Unparted bars	99,738.46	118,923.83	19,185.37	
Standard bars		7,998.62	7,998.62	
Total redeposits	218,624.06	3,062,957.90	2,941,356.49	97,022.65
Total silver received	8,357,441.05	14,459,645.53	6,102,204.47	

VALUE OF THE GOLD AND SILVER (NOT INCLUDING REDEPOSITS) RECEIVED AT THE MINTS AND ASSAY OFFICES, 1880-1898.

Fiscal years.	Gold.	Silver (coining value).	Total value.
1880.....	\$98,835,006	\$34,640,522	\$133,475,518
1881.....	130,833,102	30,791,146	161,624,248
1882.....	66,756,653	33,720,491	100,477,143
1883.....	46,347,106	36,866,834	83,213,940
1884.....	46,336,678	36,520,290	82,856,968
1885.....	52,894,075	36,789,774	89,683,849
1886.....	44,909,749	36,494,183	81,403,932
1887.....	68,223,072	47,756,918	115,979,990
1888.....	72,235,497	41,831,014	113,556,511
1889.....	42,136,436	41,238,151	83,374,587
1890.....	42,663,095	42,644,719	85,307,814
1891.....	48,485,801	71,685,985	120,171,786
1892.....	61,131,460	83,177,666	144,309,126
1893.....	46,449,842	84,233,632	130,683,474
1894.....	71,909,513	28,697,031	100,606,544
1895.....	65,161,067	15,234,700	80,395,767
1896.....	68,769,384	11,672,078	80,441,462
1897.....	87,003,338	9,470,623	96,473,961
1898.....	147,693,195	13,261,800	160,954,995

THE WORLD'S STOCK OF MONEY IN THE PRINCIPAL COUNTRIES OF THE WORLD IN 1873.

Inquiries have frequently been received within the last few years asking for information as to the stock of money in the principal countries of the world at different periods and especially as to 1873. To answer such inquiries, as far as practicable, the following table, showing the stock of money in 1873 in the countries named therein, has been compiled from the most reliable data obtainable:

APPROXIMATE STOCKS OF MONEY IN THE AGGREGATE AND PER CAPITA IN THE PRINCIPAL COUNTRIES OF THE WORLD, 1873.

Countries.	Popu- lation.	Stock of gold.	Stock of silver.	Uncovered paper.	Per capita.			
					Gold.	Silver.	Paper.	Total.
United States.....	41,700,000	\$135,000,000	\$6,150,000	\$749,445,000	\$3.24	\$0.15	\$17.97	\$21.36
Great Britain.....	31,800,000	160,000,000	95,000,000	59,800,000	5.08	2.99	1.88	9.90
France.....	36,100,800	450,000,000	500,000,000	385,300,000	12.47	13.85	10.67	36.99
Germany.....	41,000,000	160,200,000	306,235,000	90,800,000	3.91	7.47	2.21	13.59
Russia.....	82,200,000	149,100,000	18,600,000	618,400,000	1.81	.23	7.52	9.56
Italy.....	28,800,000	20,000,000	23,000,000	87,800,000	.75	.86	3.27	4.88
Belgium.....	5,200,000	25,000,000	15,000,000	35,100,000	4.81	2.88	6.75	14.44
Netherlands.....	3,900,000	12,000,000	37,300,000	15,300,000	3.08	9.56	3.92	16.56
Austria-Hungary.....	35,900,000	35,000,000	40,000,000	285,800,000	.98	1.11	7.40	9.49
Australasia.....	2,600,000	50,000,000	3,000,000	.....	19.23	1.15	.....	20.38
Denmark.....	1,800,000	4,100,000	7,500,000	6,500,000	2.28	4.16	3.61	10.05
Sweden.....	4,400,000	1,800,000	4,300,000	6,000,000	.41	.98	1.36	2.75
Norway.....	1,800,000	7,600,000	1,600,000	2,300,000	4.22	.89	1.28	6.39
Total.....	.....	1,209,890,000	1,667,685,000	2,322,545,000	.....	.....	.....	.....

WORLD'S STOCK OF MONEY.

Owing to the absence of official information from many countries, it is a difficult and laborious undertaking to make an estimate of the world's stock of money, and especially of gold and silver.

The following table, showing the money systems and the approximate countries of the world has been compiled from the latest data obtainable of official information. While the table is but an estimate, it is

MONETARY SYSTEMS AND APPROXIMATE STOCKS OF MONEY IN THE AGGREGATE

	Countries.	Monetary system.	Ratio between gold and full legal-tender silver.	Ratio between gold and limited-tender silver.	Population.	Stock of gold.
1	United States ^a	Gold and silver ..	1 to 15.98	1 to 14.95	74,500,000	\$925,100,000
2	United Kingdom	Gold .....	.....	1 to 14.28	39,800,000	b 438,000,000
3	France	Gold and silver ..	1 to 15½	1 to 14.38	38,500,000	b 810,000,000
4	Germany	Gold .....	.....	1 to 13.957	52,300,000	c 668,500,000
5	Belgium	Gold and silver ..	1 to 15½	1 to 14.38	6,500,000	c 30,000,000
6	Italy	do	1 to 15½	1 to 14.38	31,300,000	b 98,500,000
7	Switzerland	do	1 to 15½	1 to 14.38	3,000,000	f 24,000,000
8	Greece	do	1 to 15½	1 to 14.38	2,400,000	e 500,000
9	Spain	do	1 to 15½	1 to 14.38	18,000,000	g 45,500,000
10	Portugal	Gold .....	.....	1 to 14.08	5,100,000	b 5,200,000
11	Roumania	Gold and silver ..	.....	.....	5,400,000	b 14,500,000
12	Servia	do .....	.....	.....	2,300,000	b 1,200,000
13	Austria-Hungary	Gold .....	.....	1 to 13.69	45,400,000	b 227,700,000
14	Netherlands	Gold and silver ..	1 to 15½	1 to 15	4,900,000	b 21,900,000
15	Norway	Gold .....	.....	1 to 14.88	2,000,000	b 7,800,000
16	Sweden	do .....	.....	1 to 14.88	5,000,000	b 8,600,000
17	Denmark	do .....	.....	1 to 14.88	2,300,000	b 15,300,000
18	Russia	do	1 to 15½	1 to 12.90	129,200,000	b 756,600,000
19	Turkey	Gold and silver ..	1 to 15½	1 to 15½	24,100,000	e 50,000,000
20	Australasia	Gold .....	.....	1 to 14.28	5,000,000	b 132,100,000
21	Egypt	do .....	.....	1 to 15.68	9,700,000	c 30,000,000
22	Mexico	Silver	1 to 16½	.....	13,000,000	c 8,600,000
23	Central American States ..	do .....	.....	.....	3,300,000	b 1,300,000
24	South American States ..	do	1 to 15½	.....	37,500,000	b 77,500,000
25	Japan	Gold and silver ..	1 to 32.36	.....	45,000,000	b 79,900,000
26	India	do	1 to 15	.....	296,900,000	.....
27	China	Silver .....	.....	.....	383,300,000	.....
28	Straits Settlements f	do .....	.....	.....	3,900,000	.....
29	Canada	Gold .....	.....	1 to 14.28	5,300,000	b 16,000,000
30	Cuba	Gold and silver ..	1 to 15½	.....	1,800,000	c 2,000,000
31	Haiti	do	1 to 15½	.....	1,000,000	b 4,000,000
32	Bulgaria	do	1 to 15½	1 to 14.39	3,300,000	e 1,000,000
33	Siam	Silver .....	.....	.....	5,000,000	b 20,000,000
34	Hawaii	Gold and silver ..	1 to 15.98	1 to 14.95	100,000	b 4,000,000
35	Cape Colony	Gold .....	.....	1 to 14.28	1,800,000	c 37,500,000
36	South African Republic ..	do .....	.....	1 to 14.28	900,000	c 29,200,000
37	Finland	do .....	.....	1 to 15½	2,600,000	g 4,300,000
	Total .....	.....	.....	.....	1,811,400,000	4,594,900,000

^a November 1, 1898; all other countries January 1, 1898.

^b Information furnished through United States representatives.

^c Money and prices, State Department, United States.

^d Haupt.

^e Estimate, Bureau of the Mint.

Upon comparison of the foregoing estimate of the world's stock of gold the Bureau of the Mint for the fiscal year ended June 30, 1897, it is 1896 of nearly \$235,000,000 and a decrease in the world's stock of gold the estimate of the stock of silver in certain countries.

mate stock of gold, silver, and uncovered paper money in the principal ble, both official and unofficial, the latter being used only in the absence believed to exhibit approximately the stock of money in the world.

GATE AND PER CAPITA IN THE PRINCIPAL COUNTRIES OF THE WORLD.

Stock of silver.			Uncovered paper.	Per capita.			
Full tender.	Limited tender.	Total.		Gold.	Silver.	Paper.	Total.
\$561,500,000	\$78,700,000	\$638,200,000	\$328,100,000	\$12.42	\$8.56	\$4.38	\$25.36
	e 121,700,000	e 121,700,000	b 112,000,000	11.01	3.06	2.81	16.88
b 373,500,000	b 48,800,000	b 419,800,000	b 124,600,000	21.06	10.90	3.23	35.19
d 85,200,000	d 117,800,000	d 212,800,000	b 182,300,000	12.78	4.07	2.53	19.38
e 40,000,000	e 5,000,000	e 45,000,000	b 79,100,000	4.62	6.92	12.17	23.71
b 16,000,000	b 28,500,000	b 42,500,000	b 169,500,000	3.08	1.36	5.41	9.85
	f 10,700,000	f 10,700,000	b 14,800,000	8.00	3.56	4.77	16.33
e 500,000	e 1,000,000	e 1,500,000	b 30,800,000	.21	.62	12.75	13.58
	g 49,800,000	g 49,800,000	g 137,500,000	2.53	2.76	7.64	12.93
	b 6,100,000	b 6,100,000	b 39,000,000	1.02	1.20	7.64	9.86
	b 10,600,000	b 10,600,000	b 33,700,000	2.69	1.96	6.24	10.89
	b 2,700,000	b 2,700,000	b 2,700,000	.52	1.17	1.17	2.86
b 48,500,000	b 97,000,000	b 145,500,000	b 88,200,000	5.02	3.20	1.90	10.12
b 52,700,000	b 3,400,000	b 56,100,000	b 45,500,000	4.47	11.45	9.28	25.20
	b 2,300,000	b 2,300,000	b 3,800,000	3.90	1.15	1.90	6.95
	b 5,700,000	b 5,700,000	b 27,700,000	1.72	1.14	5.54	8.40
	b 5,400,000	b 5,400,000	b 7,000,000	6.65	2.35	3.04	12.04
b 83,400,000	b 45,000,000	b 128,400,000		5.86	.99		6.85
e 30,000,000	d 10,000,000	e 40,000,000		2.07	1.66		3.73
	b 7,000,000	b 7,000,000	b 22,500,000	26.42	1.40	4.50	32.32
	b 6,400,000	b 6,400,000		3.09	.66		3.75
b 106,000,000		b 106,000,000	b 4,000,000	.67	8.15	3.07	11.89
b 19,000,000		b 19,000,000	b 8,400,000	.39	5.76	2.54	8.69
e 25,000,000	e 10,000,000	e 35,000,000	b 750,600,000	2.07	.93	20.01	23.01
b 41,900,000	b 18,500,000	b 60,400,000		1.77	1.34		3.11
b 592,100,000		b 592,100,000	b 117,300,000		1.99	.40	2.39
e 750,000,000		e 750,000,000			1.96		1.96
d 240,000,000	d 2,000,000	d 242,000,000			62.05		62.05
	b 5,000,000	b 5,000,000	b 35,000,000	3.01	.95	6.60	10.56
	e 1,500,000	e 1,500,000		1.11	.83		1.94
b 3,000,000	e 1,500,000	b 4,500,000	b 4,100,000	4.00	4.50	4.10	12.60
e 3,400,000	e 3,400,000	e 6,800,000		.30	2.06		2.36
b 198,400,000		b 198,400,000		4.00	38.68		42.68
1,000,000		b 1,000,000		40.00	10.00		50.00
	e 1,000,000	e 1,000,000		20.83	.55		21.38
	e 1,200,000	e 1,200,000		32.44	1.33		33.77
	g 400,000	g 400,000	g 9,400,000	1.65	.15	3.62	5.42
3,376,100,000	701,400,000	3,977,500,000	2,322,800,000	3.50	3.03	1.77	8.30

/C. Cramer Frey.

g Bulletin de Statistique, Paris, January, 1898.

h Except Venezuela, Chile, and Peru.

i Includes Aden, Perim, Ceylon, Hongkong, Labuan, and Straits Settlements.

money with the estimate of the same for 1896 as published in the Report found there is an increase in the world's stock of gold in 1897 over silver of \$291,800,000. The decrease is solely due to the reduction in

The stock of gold in the United States is estimated to have been

on July 1, 1897, \$696,300,000, and on July 1, 1898, \$861,515,000, showing a gain of \$165,215,000. On the 1st of November, 1898, the stock was estimated to have been \$925,100,000, showing a gain from July 1 to November 1, 1898, of \$63,585,000, making the gain in the stock of gold in the United States from July 1, 1897, to November 1, 1898, of \$228,800,000. The method of estimating the stock of metallic money in the United States is fully explained in a letter addressed to the President of the Senate by the Secretary of the Treasury under date of April 18, 1898, and which will appear in another part of this report.

The stock of gold in France January 1, 1897, was officially estimated at \$772,000,000, and on January 1, 1898, at \$810,000,000, a gain during the year of \$38,000,000. Russia's stock of gold was estimated January 1, 1897, to have been \$586,900,000, and from official information received is found to have been on January 1, 1898, \$756,600,000, showing an increase over the former estimate of \$169,700,000.

For a number of years the Government of Russia has been accumulating gold from year to year, not, as many believed, as a war fund, but, as now appears, for the resumption of specie payments, and which has been successfully accomplished.

The stock of gold in the Austro-Hungarian Empire, based upon official information, was estimated to have been January 1, 1897, \$178,500,000, and on January 1, 1898, \$227,700,000, an increase during the year of \$49,200,000. By a law enacted August 2, 1892, Austria-Hungary adopted the single gold standard, and has since that time been accumulating gold to carry out that act.

During the calendar year 1897, Germany's holdings of gold increased \$14,000,000 over 1896.

The stock of gold in the South American States from unofficial information was estimated January 1, 1897, at \$65,000,000, while from official information received it is estimated to have been, January 1, 1898, \$77,500,000, an increase of \$12,500,000 over the amount held January 1, 1897. The estimate, \$584,000,000, as the stock of gold in the United Kingdom December 31, 1896, as published in the fiscal report for 1897, was based upon information contained in Money and Prices, published under the auspices of the Bureau of Statistics, State Department. The estimate of \$438,000,000 now made is based upon official information received from the British Government.

Roumania's stock of gold, estimated upon official information at \$38,600,000 December 31, 1896, is now on like information estimated at \$14,500,000, a reduction of \$24,100,000.

For the stock of gold in Egypt as published in previous reports, \$129,300,000 was the estimate of the late Ottomar Haupt, an eminent statistician of France, but from unofficial information there is substantial reason for the belief that Haupt's estimate was far too great, and it is now placed at \$30,000,000. The few statistics, as well as the information from Egypt, are very unsatisfactory, and the estimate of the stock of gold in that country is based upon the best data obtainable.

The stock of gold in Hawaii is estimated upon official information at \$4,000,000. The population of Hawaii is estimated at 100,000, giving the island a gold per capita of \$40, the largest per capita in gold of any country of the world.

The most important changes in the stock of silver in the different countries have been made in the estimates for France, India, and Russia.

From 1893 to 1897 the estimate of India's stock of silver was \$950,000,000, which was based upon figures furnished the Indian Currency Commission in 1893 by Mr. F. C. Harrison.

In an official document recently issued by the Indian Government, the stock of silver in that country is estimated at 1,250,000,000 rupees, equivalent to \$592,125,000, which sum is now adopted as the estimated stock of silver in India in the money of the United States.

From information received from the French Government the stock of silver in that country December 31, 1896, is estimated to have been \$443,900,000, and December 31, 1897, at \$419,800,000, a reduction of \$22,100,000.

Russia's stock of silver is now estimated at \$128,400,000, an increase of \$54,200,000. Within the past three years, that is from January 1, 1895, to January 1, 1898, Russia has increased her stock of silver by coinage from \$48,000,000 to \$128,400,000, the increase being for the purpose of redeeming the paper rubles.

* * * * *

PRODUCT OF GOLD AND SILVER IN THE UNITED STATES.

The detailed statistics of the product of gold and silver in the United States for the calendar year 1897 were presented in a special report to the Secretary of the Treasury.

The distribution of the product among producing States and Territories was as follows:

APPROXIMATE DISTRIBUTION, BY PRODUCING STATES AND TERRITORIES, OF THE PRODUCT OF GOLD AND SILVER IN THE UNITED STATES FOR THE CALENDAR YEAR 1897, AS ESTIMATED BY THE DIRECTOR OF THE MINT.

State or Territory.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Alabama.....	358	\$7,400	100	\$129	\$7,529
Alaska.....	86,011	1,778,000	116,400	150,497	1,928,497
Arizona.....	140,069	2,896,900	2,239,900	2,896,032	5,791,932
California.....	707,180	14,618,300	474,400	613,366	15,231,666
Colorado.....	924,166	19,104,300	21,636,400	27,974,335	47,078,635
Georgia.....	7,223	149,300	600	776	150,076
Idaho.....	32,320	1,701,700	4,901,300	6,336,905	8,038,605
Iowa.....	5	100			100
Maryland.....	5	100			100
Michigan.....	3,033	62,700	60,300	77,964	140,664
Minnesota.....	145	3,000			3,000
Montana.....	211,568	4,378,400	15,667,900	20,257,487	24,630,887
Nevada.....	143,963	2,976,400	1,228,900	1,588,881	4,565,281
New Mexico.....	17,346	356,500	539,500	697,585	1,054,085
North Carolina.....	1,674	34,600	300	388	34,988
Oregon.....	66,466	1,353,100	60,000	80,212	1,442,312
South Carolina.....	4,097	84,700	300	259	84,959
South Dakota.....	275,491	5,694,900	147,800	190,836	5,885,736
Tennessee.....	5	100			100
Texas.....	358	7,400	404,700	523,249	530,649
Utah.....	33,500	1,733,100	6,365,800	8,100,978	9,827,078
Vermont.....	5	100			100
Virginia.....	189	3,900			3,900
Washington.....	20,313	418,900	106,900	133,214	558,114
Wyoming.....	542	11,200	100	129	11,329
Total.....	2,774,935	\$7,368,000	53,880,000	\$69,637,173	127,000,173

The production of gold and silver from the mines of the United States since 1860 is shown in the following table.

The silver product is given at its commercial value, reckoned at the average market price—based on daily quotations—of silver each year as well as its coining value in United States dollars.

* * * * *

WORLD'S PRODUCTION, 1895, 1896, AND 1897.

The production of gold and silver in the world for the calendar years 1895, 1896, and 1897 was as follows:

PRODUCT OF GOLD AND SILVER IN THE WORLD.

Calendar years.	Gold.	Silver.
1895.....	\$198, 763, 600	\$216, 586, 900
1896.....	202, 682, 300	217, 442, 900
1897.....	237, 504, 900	236, 730, 900

* * * * *

REPORT OF THE REGISTER OF THE TREASURY.

TREASURY DEPARTMENT,
OFFICE OF THE REGISTER,
Washington, D. C., October 21, 1898.

SIR: I have the honor to submit the annual report of the business of this office for the fiscal year ended June 30, 1898.

The business of this Bureau is divided between two divisions, viz, division of loans, and division of notes, coupons, and currency, each having charge of the work indicated by its respective designation.

DIVISION OF LOANS.

The division of loans of the office of the Register of the Treasury is always in direct contact with the business men of the country—those dealing in United States securities, as well as with the thousands of individuals who have invested in and are holders of United States bonds.

The duties devolving upon the division pertain to the issue, transfer, and exchange of United States bonds, the preparation of schedules for the quarterly dividends of interest, and the keeping of ledger accounts with each individual holder of registered bonds in the United States and foreign countries, etc.

The fact that promptness is necessary when dealing with securities of the kind mentioned above makes it necessary that there shall be no delay in the transfer of bonds; and it affords me pleasure to state that the employees of this division are thoroughly in accord with the idea that it is necessary to clear their desks each day of the accumulated matter thereon, so that the work is always current, always in hand, and always finished (except as to the cases requiring investigation) at the close of the day. It has required no urging to bring about this state of affairs; it has long existed, and as a consequence it has become a

recognized fact with the business men of the country that bonds received for transfer one day are due for return by succeeding mail, all of the work necessary to a change of title having been accomplished in the meantime. This speaks well for the promptness and alertness of the clerical force, and they are to be commended for faithful work cheerfully performed.

During the current year nothing of an extraordinary nature occurred in the operations of the division. The work of the 3 per cent loan of 1893 was begun, so far as this office is concerned, about the 28th of June. At the close of the fiscal year it had only progressed far enough to show that the undertaking was a stupendous one. This division was removed to the new city post-office, and its force increased from 15 people to upwards of 200. The work of issuing the bonds was then begun, and with the close of June the fact was demonstrated that the greatest piece of clerical work ever undertaken by this or any other Government was successfully begun.

The history of this division's share in that work will appear in the next annual report. Aside from the beginning of the work on the war loan, nothing of an extraordinary nature occurred in the operations of the division during the past year.

Following is appended a table showing the numbers and amounts of United States and District of Columbia bonds of various kinds issued, canceled, etc., during the year as recorded upon the books of the division:

STATEMENT SHOWING THE NUMBER AND AMOUNT OF UNITED STATES BONDS ISSUED DURING THE YEAR ENDED JUNE 30, 1898.

Loan.	Bonds issued.				
	Direct issue.	Exchanges.	Transfers.	Number of bonds issued.	Total amount issued.
Funded loan of 1891, continued at 2 per cent.....R.			\$3, 789, 450	739	\$3, 789, 450
Loan of 1904, 5 per cent.....R.		\$4, 712, 100	19, 849, 100	6, 991	24, 062, 200
Consols of 1907, 4 per cent.....C.	\$3, 500			50	3, 500
.....R.	2, 450	398, 450	59, 896, 750	16, 116	59, 797, 650
Loan of 1925, 4 per cent.....C.		200, 000		200	200, 000
.....R.		6, 788, 600	36, 415, 700	8, 654	43, 204, 300
District of Columbia, 5 per cent.....R.					
District of Columbia, 3.65 per cent.....R.		119, 000	1, 752, 000	443	1, 871, 000
Pacific railroads.....R.			20, 821, 000	2, 595	20, 821, 000
Totals.....	5, 950	12, 219, 150	141, 524, 000	35, 788	153, 749, 100

STATEMENT SHOWING THE NUMBER AND AMOUNT OF UNITED STATES BONDS CANCELED DURING THE YEAR ENDED JUNE 30, 1898.

Loan.	Bonds canceled.				
	Redemptions.	Exchanges.	Transfers.	Number of bonds canceled.	Total amount canceled.
Loan of July and August, 1861, 6 per cent.....C.	\$11, 000			12	\$11, 000
Five-twentieth of 1862, 6 per cent.....C.	250			4	250
Ten-forties of 1864, 5 per cent.....C.	14, 300			35	14, 300
Loan of 1864, June 30, 6 per cent.....C.	500			1	500
Consols of 1865, 6 per cent.....C.	20, 200			33	20, 200
Consols of 1867, 6 per cent.....C.	13, 250			32	13, 250
Funded loan of 1881, 5 per cent.....C.	1, 000			1	1, 000
.....R.	1, 650			4	1, 650
Funded loan of 1881, continued at 3½ per cent.....R.	100			1	100

**STATEMENT SHOWING THE NUMBER AND AMOUNT OF UNITED STATES BONDS
CANCELED DURING THE YEAR ENDED JUNE 30, 1898—Continued.**

Loan.	Bonds canceled.				
	Redemptions.	Exchanges.	Transfers.	Number of bonds canceled.	Total amount canceled.
Loan of July 12, 1882, 3 per cent.....R.	\$100			1	\$100
Funded loan of 1891, 4½ per cent.....C.	6, 150			18	6, 150
Funded loan of 1891, continued at 2 per cent.....R.	18, 700			28	18, 700
Loan of 1904, 5 per cent.....C.		\$4, 718, 180	\$3, 789, 450	807	3, 789, 450
Consols of 1907, 4 per cent.....C.		398, 450	59, 396, 750	14, 738	59, 396, 750
Loan of 1925, 4 per cent.....C.		6, 788, 600	36, 415, 700	7, 662	6, 788, 600
District of Columbia, 1899, funded, 5 per cent.....C.	1, 700			8	1, 700
District of Columbia, 1901, funded, 3½ per cent.....R.	1, 000			1	1, 000
District of Columbia, 1924, funded, 3.65 per cent.....C.	609, 100	119, 000		616	609, 100
Pacific railroads.....R.			1, 752, 000	412	1, 752, 000
Cherokee certificates.....R.	29, 857, 962		20, 821, 000	7, 913	50, 678, 962
Total.....	1, 660, 000			166	1, 660, 000
		12, 219, 150	141, 534, 000	49, 669	185, 955, 107

TABLE SHOWING, IN SUMMARY FORM, THE NUMBER AND AMOUNT OF BONDS ISSUED AND CANCELED AND THE TOTAL NUMBER HANDLED DURING THE LAST TEN YEARS.

Year.	Bonds issued.		Bonds canceled.		Total handled.	
	Number.	Amount.	Number.	Amount.	Number.	Amount.
1888-89.....	21, 500	\$103, 894, 350	85, 149	\$281, 811, 450	106, 649	\$385, 705, 800
1889-90.....	17, 669	67, 181, 500	66, 830	171, 575, 200	84, 499	238, 756, 700
1890-91.....	16, 592	69, 151, 600	75, 606	172, 356, 460	92, 198	241, 508, 050
1891-92.....	26, 253	107, 738, 200	54, 288	129, 009, 825	80, 541	236, 748, 025
1892-93.....	15, 796	59, 396, 050	24, 943	60, 371, 850	40, 739	119, 767, 900
1893-94.....	64, 799	163, 551, 900	36, 196	114, 277, 300	100, 994	277, 829, 100
1894-95.....	80, 362	195, 445, 950	43, 072	110, 513, 300	123, 434	305, 959, 150
1895-96.....	143, 476	258, 595, 350	64, 579	186, 941, 450	208, 055	445, 536, 800
1896-97.....	33, 704	129, 612, 500	49, 731	143, 185, 450	83, 435	272, 797, 950
1897-98.....	35, 788	153, 749, 100	49, 669	185, 955, 102	85, 457	339, 704, 202

As it has always been considered by the Department that registered bonds are safer for the payee to handle than coupon bonds, a regulation has long been in vogue permitting the holders of the latter class of securities to exchange them for the former. This is done by forwarding the coupon bonds to the Secretary of the Treasury, accompanied by a letter of transmittal, requesting the exchange, and giving name and address of the payee for the registered bonds. During the current year coupon bonds to the amount of \$12,219,150 were forwarded for exchange as against \$17,600,800 last year. This falling off is accounted for by the fact that when a loan is placed, the greater part of it (a ratio of 8 to 1, probably) goes out in coupon bonds. The dealers seem to prefer the coupon bonds, as they are payable to bearer, but when the bonds reach the hands of the purchasers who are making permanent investments, registered bonds are preferred and the coupon securities gravitate toward the Treasury for exchange. After a year or two the bonds usually find their way into the hands of permanent investors, and the exchanges gradually increase in amount. For the next year or two the exchanges will be heavy, as the 3 per cent loan, now being placed, is especially freighted with coupon bonds.

During the year the following District of Columbia bonds were redeemed:

Loan.	Number of bonds.	Amount.
6 per cent permanent improvement bonds	6	\$1,500

SPANISH INDEMNITY CERTIFICATES.

As a matter of special interest at this time, the short history of the origin of the Spanish indemnity certificates, embraced in the last annual report of the Register of the Treasury, is repeated:

Under a convention between the United States and Spain, concluded at Madrid, February 17, 1834, a commissioner was appointed, who awarded to certain claimants against Spain the aggregate sum of \$599,850.28. The claims in question arose from the seizure of vessels and cargoes belonging to American citizens by privateers, or from the seizure and confiscation of the same in the ports of Spain and its colonies. In each case the Spanish courts has approved of such action.

The treaty was intended to cover claims remaining unsettled at the date of the prior treaty of February 22, 1819, or which had arisen since that date up to the date of the signing of the convention on February 17, 1834. It claimed to be a full settlement of all claims of whatever class, denomination, or origin then at issue. Suitable legislation for carrying out the treaty was enacted by Congress in an act approved June 7, 1836. The United States agreed to receive and transmit to the proper parties such amount of principal or interest as might be forwarded by Spain.

The sum of \$28,500 has been received annually, through the Department of State, and divided pro rata among the holders of this stock. The fifty-eighth installment has not yet been paid. The transfers from one owner to another for the last ten years are shown in the following table:

Year.	Issued on transfers.		Canceled on transfers.	
	Number of bonds.	Amount.	Number of bonds.	Amount.
1888-89.....	16	\$59,891.48	23	\$59,891.48
1889-90.....	4	36,813.86	4	36,813.86
1890-91.....	3	10,189.70	3	10,189.70
1891-92.....	7	61,565.77	6	61,565.77
1892-93.....	128	595,972.51	136	595,972.51
1893-94.....	9	44,523.95	8	44,523.95
1894-95.....	4	12,306.53	8	12,306.53
1895-96.....	4	39,556.94	4	39,556.94
1896-97.....	8	28,475.78	8	28,475.78
1897-98.....	51	54,446.68	11	54,446.68

The third installment of certificates, showing the indebtedness of the Government on account of the Cherokee lands, issued under the act of August 15, 1894, and amounting to \$1,660,000, was redeemed in full, the same having become due March 4, 1898.

The following issues of bonds in aid of the construction of the various branches of the Pacific railroads matured during the year:

Date due.	Road.	Amount.
January 1, 1898.....	Central Pacific R. R.....	\$10,614,120
Do.....	Union Pacific R. R.....	15,919,512
Do.....	Kansas Pacific Rwy. Co., late Union Pacific Rwy. Co., eastern division.	1,438,000
Do.....	Central branch, Union Pacific R. R. Co., late Atchison and Pike's Peak R. R. Co., etc.	330,000
Do.....	Sioux City and Pacific R. R.....	1,028,320
Total.....		29,304,952
Add amount called for payment during year 1894-95.....		2,302,000
Add amount called for payment during year 1895-96.....		8,640,000
Add amount called for payment during year 1896-97.....		9,712,000
Total Pacific R. R. bonds called for payment.....		50,618,952
Amount payable January 1, 1898.....		14,004,500
Total.....		64,623,512

NEW BONDS RECEIVED.

Below is a statement showing the number and amount of bonds received from the Bureau of Engraving and Printing during the year:

Loan of 1925, coupon, 200 sheets, amounting to \$200,000; loan of 1904, registered, 5,000 sheets, amounting to \$4,100,000; loan of 1907, registered, 14,760 sheets, amounting to \$10,290,000; loan of 1925, registered, 9,000 sheets, amounting to \$54,000,000; Pacific Railroad, registered, 430 sheets, amounting to \$3,250,000; District of Columbia 3.65 per cent loan, registered, 400 sheets, amounting to \$1,600,000. The total number of bonds received was 29,740, aggregating \$73,440,000.

It is always necessary that a stock of bonds, unsigned, and not filled in, should be kept on hand, in order that the demand occasioned by the transfers and exchanges may be promptly met.

It is no small part of the duty of this division to prepare the schedules for the payment of the interest upon the various loans. These schedules are delivered to the Treasurer of the United States, who from them draws the checks, which he forwards to the persons entitled to receive them. Upon most of the loans the interest is payable quarterly, and the work of preparing the schedules each quarter is an enormous one.

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TABLE SHOWING ISSUES AND REDEMPTIONS OF UNITED STATES INTEREST-BEARING NOTES AND CERTIFICATES, AND AMOUNTS OUTSTANDING, OF EACH CLASS OF THESE SECURITIES, TO JUNE 30, 1898.

Issue.	Total issued.	Redeemed.			Outstanding.
		To June 30, 1897.	During year.	To June 30, 1898.	
Seven-thirty Treasury notes:					
Act of July 17, 1881.....	\$140,094,750.00	\$140,085,050.00	\$200.00	\$140,085,250.00	\$9,500.00
Act of June 30, 1864, first series.....	299,992,500.00	299,945,250.00	100.00	299,945,350.00	47,150.00
Act of March 3, 1865, second series.....	331,000,000.00	330,969,450.00	100.00	330,969,550.00	30,450.00
Act of March 3, 1865, third series.....	199,000,000.00	198,953,900.00	200.00	198,954,100.00	45,900.00
Total.....	970,087,250.00	969,953,650.00	600.00	969,954,250.00	133,000.00

TABLE SHOWING ISSUES AND REDEMPTIONS OF UNITED STATES INTEREST-BEARING NOTES AND CERTIFICATES, ETC.—Continued.

Issue.	Total issued.	Redeemed.			Outstand- ing.
		To June 30, 1897.	During year.	To June 30, 1898.	
Certificates of indebtedness (acts of March 1 and 17, 1862, and March 3, 1863):					
First issue	\$498,593,241.65	\$498,591,241.65	.....	\$498,591,241.65	\$2,000.00
Second issue	63,150,000.00	63,150,000.00	.....	63,150,000.00	1,000.00
Total	561,753,241.65	561,750,241.65	.....	561,750,241.65	3,000.00
Three per cent certificates (acts of March 2, 1867, and July 25, 1868)	85,155,000.00	85,150,000.00	.....	85,150,000.00	5,000.00
Refunding certificates (act of February 26, 1879), payable to order	58,500.00	58,430.00	.....	58,430.00	70.00
Refunding certificates (act of February 26, 1879), payable to bearer	39,954,250.00	39,909,040.00	\$3,870.00	39,912,710.00	41,540.00
Total	40,012,750.00	39,967,470.00	3,870.00	39,971,140.00	41,610.00
Gold certificates:					
Act of March 3, 1863, first series	429,604,900.00	429,596,800.00	.....	429,596,800.00	8,100.00
Act of March 3, 1863, first series, Geneva award (special)	33,000,580.46	33,000,580.46	.....	33,000,580.46	.....
Act of March 3, 1863, series of 1870	370,500,000.00	370,471,000.00	.....	370,471,000.00	29,000.00
Act of March 3, 1863, series of 1871	5,000,000.00	4,997,700.00	100.00	4,997,800.00	2,200.00
Act of March 3, 1863, series of 1875	143,029,400.00	142,886,400.00	900.00	142,887,300.00	142,100.00
Total	981,134,880.46	980,952,480.46	1,000.00	980,953,480.46	181,400.00
One-year Treasury notes (act of March 3, 1863)	44,520,000.00	44,488,045.00	220.00	44,488,265.00	31,735.00
Two-year Treasury notes:					
Act of March 3, 1863, issued without coupons	\$16,480,000.00	\$16,472,600.00	\$50.00	\$16,472,650.00	\$7,350.00
Act of March 3, 1863, issued with coupons	150,000,000.00	149,980,000.00	.....	149,990,000.00	20,000.00
Total	166,480,000.00	166,452,600.00	50.00	166,452,650.00	27,350.00
Compound-interest notes, three-year:					
Act of March 3, 1863	17,983,760.00	17,982,820.00	.....	17,982,820.00	10,940.00
Act of June 30, 1864	248,801,680.00	248,442,780.00	1,010.00	248,443,790.00	157,890.00
Total	266,595,440.00	266,425,600.00	1,010.00	266,426,610.00	168,830.00

Daily reference is made by the accounting offices of the Department to the files and records of this division; the simple and uniform system adopted for recording and filing all redeemed and canceled securities of the Government securing such a degree of safety, accuracy, and accessibility that, from the millions of redeemed securities now on file in this division, any one of them, by reference to the records, can be located and withdrawn for inspection without a moment's delay.

In closing this report, I desire to express my grateful appreciation to the clerks and other employees for the careful, accurate, and willing manner in which they have all performed their duties.

Respectfully submitted.

JUDSON W. LYONS,
Register.

To the Honorable
The SECRETARY OF THE TREASURY.

REPORT OF THE AUDITOR FOR THE TREASURY DEPARTMENT.

TREASURY DEPARTMENT,
OFFICE OF THE
AUDITOR FOR THE TREASURY DEPARTMENT,
September 1, 1898.

SIR: I have the honor to submit the following report concerning the business of this office for the fiscal year ended June 30, 1898:

* * * * *

CUSTOMS DIVISION.

The customs division audits the accounts of collectors of customs for receipts of customs revenue, and disbursements for the expenses of collecting the same, and also including accounts of collectors for receipts and disbursements in connection with the Revenue-Cutter, Light-House, and Marine-Hospital services, and accounts for official emoluments, debentures, refund of duties, warehouse and bond accounts, and miscellaneous disbursements.

The following summary indicates the work of the year:

	Number of accounts.	Amount.
Receipts.....	2, 656	\$134, 277, 260.11
Disbursements	7, 775	10, 372, 894.34
Total receipts and disbursements	10, 431	144, 650, 094.47
Warehouse and bond accounts	997	107, 005, 339.04
Total receipts and disbursements, and warehouse and bond accounts.	11, 428	253, 655, 435.53

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PUBLIC-DEBT DIVISION.

The public-debt division audits all accounts for payment of interest on the public debt, both registered stock and coupon bonds, Pacific Railroad bonds, Louisville and Portland Canal bonds, navy pension fund, redemption of United States bonds, redemption of coin and currency certificates, old notes, and bounty scrip, and accounts for notes and fractional currency destroyed. The following summary shows the work performed by this division during the year:

	Number of accounts.	Amount.
Interest on United States securities	699	\$27, 298, 065.30
Redemption of United States bonds	81	124, 062, 352.80
United States circulating securities destroyed.....	61	253, 747, 211.50
Total	841	415, 047, 649.10

The work of this division will be largely increased hereafter by the accounts relating to the payment of interest on the war loan of 1898.

INTERNAL-REVENUE DIVISION.

The internal-revenue division audits all accounts relating to internal revenue. Said accounts receive an administrative examination in the office of the Commissioner of Internal Revenue before they are for-

warded to the Auditor for final examination and settlement. The work performed by this division during the year is indicated by the following summary:

	Number of accounts.	Amount.
Receipts	316	\$157, 011, 846. 35
Disbursements	2, 155	3, 703, 491. 91
Total receipts and disbursements	2, 471	161, 673, 632. 26
Stamp accounts of the Commissioner of Internal Revenue	93	178, 377, 823. 33
Total receipts, disbursements, and stamp accounts	2, 564	340, 051, 761. 59

The work of this division will be enlarged hereafter under the provisions of the war-revenue law of 1898.

MISCELLANEOUS DIVISION.

The miscellaneous division audits all accounts of the Department of the Treasury, including salaries and contingent expenses, Life-Saving Service, outstanding liabilities, bonded and land-grant railroads, Coast and Geodetic Survey, accounts of mints and assay offices, construction and care of public buildings, United States Treasurer and assistant treasurers, Light-House Establishment, Bureau of Engraving and Printing, independent treasury, Marine Hospital, Steamboat-Inspection Service, and sales of old material.

The accounts examined and settled by this division are briefly summarized as follows:

	Number of accounts.	Amount.
Receipts	346	\$493, 613, 316. 54
Disbursements	6, 756	501, 963, 009. 69
Total	7, 102	995, 581, 226. 23

During the preceding fiscal year this division audited a smaller number of accounts, 5,954, involving a much larger amount, \$1,813,959,116.28. This difference in amounts is largely explained by the fact that the general accounts of the Treasurer of the United States for the fourth quarter of the fiscal year 1897 and the first quarter of 1898 were not received by this office in time to make the examinations and issue the certificates of settlement prior to June 30, 1898, although the work was completed soon thereafter.

Those accounts involved receipts amounting to \$344,948,598.20, and expenditures amounting to \$372,759,175.35, making a total of \$717,707,773.55. Of course this total could not be included in the record of certificates actually issued.

Respectfully, yours,

W. E. ANDREWS,
Auditor.

Hon. LYMAN J. GAGE,
Secretary of the Treasury.

REPORT OF THE AUDITOR FOR THE WAR DEPARTMENT.

TREASURY DEPARTMENT,
OFFICE OF AUDITOR FOR THE WAR DEPARTMENT,
Washington, D. C., August 27, 1898.

SIR: I have the honor to submit the following annual report, showing the details of the work performed in this office during the fiscal year ending June 30, 1898.

During the last year I found some confusion arising from the assignment of duties among the different divisions, and with a view of simplifying the organization, I have rearranged the duties of the office, seeking to make as little change as consistent with the interests of the service.

Under the assignment of duties as given in the annual reports for 1895 and 1896, and referred to in my last annual report, it was often necessary that three different items of one claim be settled by as many different divisions, whereas, under the rearrangement, a claim presented to the office is now settled as an entirety.

Of the six divisions of the office as now constituted, two examine and audit disbursing officers' accounts, two examine and audit claims coming within the jurisdiction of the office, one reviews the accounts and claims stated by the examining divisions, and one has charge of the archives containing the record of payments to the armies of the United States.

The pay and bounty division receives and audits all claims presented against the Government by or in behalf of soldiers or officers of the Army or their legal representatives.

The claims division receives and audits all other claims arising within the jurisdiction of the Department of War or relating to the military establishment.

The military division receives and audits all accounts of disbursements pertaining to the Engineer Corps and Signal Corps, the Quartermaster's Department, and the Subsistence Department.

The paymaster's division receives and audits all accounts pertaining to the Pay Department, Ordnance and Medical Departments of the Army, and the accounts of the disbursing clerk of the War Department, also all accounts pertaining to the Soldiers' Home and National Home for Disabled Volunteer Soldiers.

The review division revises all balances as stated by the other divisions of the office. All claims stated by the pay and bounty division and claims division, consisting of original claims against the Government, are carefully reexamined before the balance is certified, and, in cases of the accounts of disbursing officers which have had administrative action, a general review is had, with a view of determining that a proper examination has been made of the accounts, before the balances are certified.

The archives division receives, files, and has charge of all accounts and vouchers showing payment to officers and enlisted men of the Army, keeps an index to all such payments, and furnishes information from the archives when required for use in the examination of claims pending before the office.

The following tabulated statement shows the work performed during the fiscal year and the condition of business at its close, June 30, 1898:

PAY AND BOUNTY DIVISION.

EXAMINING BRANCH.

Classes of claims.	Claims pending July 1, 1897.	Claims received.	Sent to settling branch.	Dis-allowed.	Referred else-where.	Claims pending June 30, 1898.
WHITE SOLDIERS.						
Commissioned officers and enlisted men, arrears of pay and all bounties, etc...	14, 735	20, 000	5, 768	6, 641	2, 351	20, 635
COLORED SOLDIERS.						
Arrears of pay and bounty	4, 053	4, 239	759	1, 179	1, 295	5, 059
Total	18, 788	24, 239	6, 527	7, 820	3, 646	25, 694

SETTLING BRANCH.

Classes of claims.	Claims pending July 1, 1897.	Received from Examining Branch.	Allowed.	Dis-allowed.	Claims pending June 30, 1898.
WHITE SOLDIERS.					
Commissioned officers and enlisted men, arrears of pay, and all bounties, etc	589	5, 768	5, 820	161	376
COLORED SOLDIERS.					
Arrears of pay and bounty	46	759	749	18	88
Total	635	6, 527	6, 569	179	414

Number of claims settled and allowed during the year.....	6, 569
Amount involved in claims settled and allowed.....	\$444, 575. 79
Number of claims disallowed.....	7, 999
Number of claims finally disposed of.....	14, 568
Number of claims referred to files of abandoned claims by reason of abandonment, etc.....	3, 646
Number of claims pending June 30, 1898.....	26, 108
Number of letters written and mailed during the year.....	175, 929

CLAIMS DIVISION.

Claims on hand July 1, 1897	35	
Claims on hand in paymasters and claims division July 1, 1897	788	
		823
Claims received.....	762	
Claims received in paymasters and claims division prior to January 1, 1898	1, 029	
		1, 791
To be accounted for.....		2, 614
Claims settled	878	
Claims settled in paymasters and claims division prior to January 1, 1898.	513	
Claims transferred to pay and bounty division January 1, 1898.....	507	
		1, 898
On hand June 30, 1898.....		716
Total amount of claims allowed, \$4,714,958.82.		

CLAIMS DIVISION—continued.

MISCELLANEOUS WORK.

Incoming mail (pieces).....	165,300
Outgoing mail (pieces).....	158,669
Claims briefed and jacketed.....	24,631
Claims registered.....	23,780
Additional evidence registered.....	14,307
Bonds registered.....	164
Contracts registered.....	1,443
Quartermaster and subsistence accounts examined for payments.....	6,466
Certificates of nonindebtedness issued.....	1,893
Letters written.....	13,775
Pages typewritten.....	11,247
Inquiries from other bureaus answered.....	7,742
Letters referred to other offices.....	1,531
Requisitions recorded and indexed (amount, \$88,196,982.61).....	2,803
Calls from Department of Justice, requiring search of quartermaster and subsistence accounts on hand, unanswered, June 30, 1898.....	50

PAYMASTERS' DIVISION.

PAYMASTERS' ACCOUNTS.

On hand July 1, 1897.....	59
Received during the year.....	293
To be accounted for.....	352
Examined during the year.....	274
On hand June 30, 1898.....	78
Amount disbursed in accounts examined, \$14,706,554.19.	

ORDNANCE ACCOUNTS.

On hand January 1, 1898.....	77
Received since.....	197
To be accounted for.....	274
Examined to June 30, 1898.....	192
On hand June 30, 1898.....	82
Amount disbursed in accounts examined, \$3,211,257.91.	
Amount disbursed in accounts examined in mail and miscellaneous division prior to January 1, 1898, \$2,888,077.70.	

MEDICAL ACCOUNTS.

On hand January 1, 1898.....	85
Received to June 30, 1898.....	164
To be accounted for.....	249
Examined to June 30, 1898.....	236
On hand June 30, 1898.....	13
Amount disbursed in accounts examined, \$244,265.34.	
Amount disbursed in accounts examined in mail and miscellaneous division prior to January 1, 1898, \$168,901.49.	

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS ACCOUNTS.

On hand January 1, 1898.....	97
Received to June 30, 1898.....	94
To be accounted for.....	191
Examined to June 30, 1898.....	97
On hand June 30, 1898.....	94
Amount disbursed in accounts examined, \$1,520,805.65.	
Amount disbursed in accounts examined in mail and miscellaneous division prior to January 1, 1898, \$625,538.51.	

PAYMASTERS' DIVISION—continued.

MISCELLANEOUS ACCOUNTS.

On hand January 1, 1898	51
Received to June 30, 1898	171
To be accounted for	222
Examined to June 30, 1898	201
On hand June 30, 1898	21
Amount involved in accounts examined, \$1,640,659.07.	
Amount involved in accounts examined in mail and miscellaneous division prior to January 1, 1898, \$581,785.31.	

MISCELLANEOUS WORK.

Letters written	3,553
Pages typewritten	6,793
Vouchers recorded	70,887
Vouchers examined	105,906
Vouchers returned to files	757
Miscellaneous settlements reported	577
Miscellaneous papers filed	2,156
Requisitions passed	751
Deceased soldiers' cases settled in favor of Soldiers' Home	102
Number of cases in which officers' pay status has been determined	265

During the year the sum of \$115,007.33 was placed to the credit of the permanent fund of the Soldiers' Home, being the amount retained from enlisted men of the Regular Army on account of the 12½ cent fund, and amount found due deserters, dishonorably discharged men, and deceased soldiers. There was withdrawn from said fund during the year, for current expenses, the sum of \$129,000, and the amount paid the treasurer of the Home on account of interest on the permanent fund, under section 8 of the act of March 3, 1883, was \$101,897.82.

The records of deposits by enlisted men under act of May 15, 1872, show that 20,074 deposits were made since last report, amounting to \$527,656.64, and that 12,055 deposits have been withdrawn, amounting to \$437,259.17, upon which the depositors received interest amounting to \$36,894.35.

MILITARY DIVISION.

QUARTERMASTERS' ACCOUNTS.

On hand July 1, 1897	751
Received during the year	2,528
Total	3,279
Settled during the year	1,951
On hand unsettled June 30, 1898	1,328
Supplemental settlements	229
Amount involved in supplemental settlements, \$162,581.47.	
Amount allowed in accounts settled, \$6,056,120.76.	

ENGINEER ACCOUNTS.

On hand July 1, 1897	332
Received during the year	888
Total	1,220
Settled during the year	868
On hand unsettled June 30, 1898	352
Supplemental settlements made	15
Amount involved in supplemental settlements, \$2,673.46.	
Amount allowed in accounts settled, \$21,523,162.72.	

with Spain, has only begun to affect the work of the office, as but comparatively few accounts involving such expenditures were received prior to June 30, 1898. However, that work will be increased many fold during the coming year.

Disbursing officers of the War Department have, in pursuance of your instructions rendered separate accounts for expenditures under the appropriation of act of March 9, 1898, for the national defense, and such accounts are, upon receipt in this office, kept entirely separate and distinct from other accounts and settled promptly.

With a view of carefully and promptly disposing of the increased work of the office occasioned by the war, under date of May 11, 1898, request was made for an increase in the force of the office for the fiscal year 1899 by the appointment of 8 clerks of class 4, 17 clerks of class 3, 10 clerks of class 2, and 30 clerks of class 1. By act of May 31, 1898, appropriation was made for the number of clerks requested, but to expire March 31, 1899.

It is recommended that Congress be requested to provide for the additional force for this office authorized by act of May 31, 1898, for the balance of the present fiscal year, and that the same number of clerks of the classes therein mentioned be added to the regular appropriation for the year ending June 30, 1900. It is also recommended that Congress be requested to provide for the following clerks in addition to the number now employed, such appropriation to be included in the regular appropriation for salaries of this office for the year 1900, viz, ten clerks, at \$1,000 per annum; ten clerks, at \$900 per annum, and three assistant messengers, at \$720 per annum, making the appropriation for the next fiscal year as follows:

1 auditor	\$4,000
1 deputy auditor	2,500
1 law clerk	2,000
6 chiefs of division, at \$2,000	12,000
24 clerks, at \$1,800	43,200
Additional as disbursing clerk	200
60 clerks, at \$1,600	96,000
76 clerks, at \$1,400	106,400
82 clerks, at \$1,200	98,400
21 clerks, at \$1,000	21,000
15 clerks, at \$900	13,500
3 clerks, at \$840	2,520
1 skilled laborer	900
1 messenger	840
6 assistant messengers, at \$720	4,320
8 laborers, at \$660	5,280
306	413,060
For the purpose of restoring and repairing the worn-out and defaced rolls and vouchers in the office of the Auditor of the War Department	\$21,000

On July 6, 1898, I recommended, for reasons set forth in letter of that date, that Congress be requested to consider the question of the enactment of a law authorizing the accounting officers to adjust the accounts of certain volunteers who die within six months of their enrollment. The bill passed the House of Representatives July 7, 1898, in the following form:

Be it enacted, etc., That in the adjustment of the accounts of volunteers enrolled on account of the existing war with Spain who have died, or may hereafter die within six months from the date of their enrollment, the accounting officers of the Treasury shall make no stoppage on account of clothing overdrawn, against the pay or allowances otherwise found due the widow, heirs, or legal representative of the soldier, unless the amount of clothing actually drawn by him is in excess of the clothing allowance for a soldier of his grade for the first six months of service.

too late to be favorably considered by the Senate. I have to recommend that the attention of the Senate be called to the matter with a view to its favorable consideration at an early date after the convening of that body.

I also recommend that Congress be requested to favorably consider the question of repealing the act of July 13, 1870, and amendments so far as they limit the time for filing claims for bounty under act of July 28, 1866 (14 Stat., 322).

There is no other statute limiting the time within which claims for bounty for service during the war of the rebellion shall be filed with the accounting officers. There is no bounty law more equitable in its terms than the act of July 28, 1866, and no records more complete and accurate than the record of payments already made thereunder.

The act provides for the payment of \$100 or \$50 for service of three years or two years, respectively, provided the soldier never received or was entitled to receive more than \$100 bounty under any other law or laws for all his services during the rebellion, and limits the payment to the soldier, his widow, minor children, or parents. The great majority of all who were entitled under the act of July 28, 1866, have been paid, and while the amount of money involved will be very small, the apparent injustice to deserving claimants will be removed by the repeal of the law of limitation in this case.

I am persuaded that I should not close this report without a word of commendation for the faithful and efficient service rendered by the force of the bureau, including laborers, clerks, chiefs of divisions, and other officers. With scarcely an exception, each has performed his respective duty with zeal and fidelity to the public.

During the month of June it became important that more work should be done than could be crowded into the hours between 9 a. m. and 4 p. m., in order to keep abreast with the increasing business incident to the Spanish war, before the increased force authorized by Congress could be appointed and their service to any great extent utilized. In the emergency it was found necessary to work over hours. It was a source of extreme pleasure to note the willing and ready response to the order by nearly every clerk in the office, as well as the great increase of work turned out during the extra hour of labor required of them. While I should be opposed to a general extension of the hours of labor in the Bureau, I can plainly see the importance of occasional resort to this plan of expediting business, and, when such resort is necessary, of a ready and willing response thereto. In this connection I deem it my duty to urge the importance of the electric wiring of the Winder Building, so that artificial illumination—found necessary often in the winter, between 3 and 4 o'clock—may be supplied for the building during such extra time in the evening as may, in emergency, be needed.

Respectfully submitted.

W. W. BROWN, *Auditor*.

The SECRETARY OF THE TREASURY.

REPORT OF THE AUDITOR FOR THE NAVY DEPARTMENT.

TREASURY DEPARTMENT,
OFFICE OF AUDITOR FOR THE NAVY DEPARTMENT,
Washington, D. C., October 4, 1898.

SIR: I have the honor to submit the annual report of this Bureau for the fiscal year ended June 30, 1898.

I desire especially to call your attention to the following data, which show the very great increase of the work of the Bureau:

	July, 1897.	July, 1898.
Vessels in the Navy	141	201
Pay officers (active) in the Navy	96	159
Naval appropriations available	\$40,655,688.81	\$122,840,202.11
	Fourth quarter, 1897.	Fourth quarter, 1898.
Pay officers making monthly returns	81	122
Expenditures per monthly returns	\$9,657,962.67	\$30,460,475.95
	First quarter, 1898.	First quarter, 1899.
Accounts and claims received	1,161	1,848
Accounts and claims settled	1,009	1,357
Expenditures audited	\$8,153,319.34	\$15,299,776.23
Number of Navy requisitions	662	1,069
Amount of Navy requisitions	\$12,330,876.68	\$30,663,577.06

In some of the divisions of the office, particularly the division of claims, in which claims for arrears of pay, traveling expenses, etc., are adjusted, the increase of work incident to the war has not yet been felt to any considerable extent, but the work will very materially increase during the fiscal year ending June, 1899. It is certain that there will be no decrease of work in this Bureau even for the fiscal year 1900. The work pertaining to the computation and distribution of prize money resulting from captures made by our Navy in the present war, which is all performed in this Bureau, has not yet begun and is not expected to be reached much before the year 1899. This will further increase the work to be performed.

I desire especially to commend to your notice my three chiefs of division, Louis K. Brown, George P. Davis, and Paul T. Bowen. For earnestness, efficiency, and thorough knowledge of their duties their superiors are not to be found in the public service. It is with great pleasure, too, that I commend the service of this office. My clerks, generally, through the severe trial of the past six months have taken hold with a will and have responded cheerfully to the additional service required. The increased amount of work which has been accomplished speaks volumes for their faithful cooperation, and it is owing to their efficiency and industry that I am able to report that the business of the office is practically up to date.

The following table exhibits in detail the appropriations and expenditures for the fiscal year 1898:

APPROPRIATIONS AND EXPENDITURES OF THE UNITED STATES NAVY FOR THE FISCAL YEAR ENDED JUNE 30, 1898.

Title of appropriation.	Year.	Appropriations and balances.	Net amount drawn out by warrant.	Balance in hand June 30, 1898.
Pay of the Navy.....	{ 1898 1899 }	\$17,955,400.00		\$17,955,400.00
Pay of the Navy.....	{ 1898 1899 }	8,235,385.00	97,270,501.74	964,893.26
Pay of the Navy.....	{ 1897 1898 }	1,219,250.74	1,182,749.81	36,500.93
Pay of the Navy.....	{ 1896 1897 }	228,238.92	226,830.45	1,708.47
Pay of the Navy.....	{ 1895 1896 }	574.06	574.06	
Pay, Miscellaneous.....	{ 1898 1899 }	300,000.00		300,000.00
Pay, Miscellaneous.....	{ Jan. 1, 1899 }	100,000.00	13,076.62	86,923.38
Pay, Miscellaneous.....	{ 1898 1899 }	303,841.50	301,115.57	2,725.93
Pay, miscellaneous.....	{ 1897 1898 }	48,355.38	47,258.11	1,097.27
Pay, miscellaneous.....	{ 1896 1897 }	17,070.54	18,917.70	3,152.84
Contingent, Navy.....	{ 1898 1899 }	7,000.00		7,000.00
Contingent, Navy.....	{ 1898 1899 }	7,000.00	2,997.04	4,002.96
Contingent, Navy.....	{ 1897 1898 }	1,808.04	1,344.37	563.67
Emergency fund, Navy.....	{ Jan. 1, 1899 }	10,000,000.00		10,000,000.00
National defense, Navy.....	{ 1898 1899 }	20,622,415.20	20,622,415.20	
Vessels for United States auxiliary naval force.....		3,000,000.00	352,010.00	2,647,990.00
Pay of the Navy, deposit fund.....		432,543.84	172,943.19	259,600.65
Navy pension fund.....		840,000.00	497,726.00	342,275.00
Prize money.....		448,445.05	2,101.35	446,343.70
Bounty for destruction of enemy's vessels, act July 7, 1864.....		53,966.21	428.40	53,542.81
Increase of the Navy:				
Construction and machinery.....		20,709,281.98	6,067,394.84	14,641,947.09
Armor and armament.....		13,081,155.71	4,536,635.68	8,504,520.03
Equipment.....		563,118.41	145,392.22	407,726.19
Submarine torpedo boat.....		129,935.33	1,800.00	128,135.33
Training vessels for Naval Academy.....		350,000.00	4,343.50	245,656.50
Nickel.....		8,837.97	230.00	8,607.97
Rapid twist guns and reinforce cartridges.....		11,194.11		11,194.11
Gun plant, Navy-yard, Washington, D. C.....		42,058.40	7,652.49	34,405.91
<i>Marine Corps.</i>				
Pay, provisions, etc., Marine Corps.....	{ 1898 1899 }	567,900.00	52,468.70	515,431.30
Pay of the Marine Corps.....	{ 1898 1899 }	878,554.23		878,554.23
Pay of the Marine Corps.....	{ 1898 1899 }	764,140.20	716,358.07	47,782.13
Pay of the Marine Corps.....	{ 1897 1898 }	48,199.33	45,000.80	2,598.53
Pay of the Marine Corps.....	{ 1896 1897 }	33,827.01	33,220.75	2,106.26
Pay of the Marine Corps.....	{ 1895 1896 }	3,865.77	2,821.24	1,044.53
Pay of the Marine Corps.....	{ 1894 1895 }	2.83	2.83	
Provisions, Marine Corps.....	{ 1898 1899 }	131,911.50		131,911.50
Provisions, Marine Corps.....	{ 1898 1899 }	100,000.00	88,283.01	13,716.99
Provisions, Marine Corps.....	{ 1897 1898 }	32,019.29	14,009.95	18,009.34
Clothing, Marine Corps.....	{ 1898 1899 }	130,810.40	4,605.16	126,205.24
Clothing, Marine Corps.....	{ 1898 1899 }	97,255.00	96,623.18	631.82
Clothing, Marine Corps.....	{ 1897 1898 }	14,558.73	7,388.66	7,170.07
Fuel, Marine Corps.....	{ 1898 1899 }	19,500.00		19,500.00
Fuel, Marine Corps.....	{ 1898 1899 }	19,500.00	12,208.08	7,291.92
Fuel, Marine Corps.....	{ 1897 1898 }	5,485.99	2,480.74	3,005.25
Military stores, Marine Corps.....	{ 1898 1899 }	23,297.00		23,297.00
Military stores, Marine Corps.....	{ 1898 1899 }	13,297.00	11,928.90	1,370.10
Military stores, Marine Corps.....	{ 1897 1898 }	1,268.15	1,257.12	11.03
Transportation and recruiting, Marine Corps.....	{ 1898 1899 }	15,000.00		15,000.00
Transportation and recruiting, Marine Corps.....	{ 1898 1899 }	15,000.00	12,930.10	1,069.90
Transportation and recruiting, Marine Corps.....	{ 1897 1898 }	3,069.48	2,381.27	688.21
Repairs of barracks, Marine Corps.....	{ 1898 1899 }	18,925.00		18,925.00
Repairs of barracks, Marine Corps.....	{ 1898 1899 }	45,600.00	19,314.80	26,285.20
Repairs of barracks, Marine Corps.....	{ 1897 1898 }	3,813.65	1,164.90	2,648.75
Forge, Marine Corps.....	{ 1898 1899 }	3,000.00		3,000.00

APPROPRIATIONS AND EXPENDITURES OF THE UNITED STATES NAVY FOR THE
FISCAL YEAR ENDED JUNE 30, 1898—Continued.

Title of appropriation.	Year.	Appropriations and balances.	Net amount drawn out by warrant.	Balance in hand June 30, 1898.
<i>Marine Corps—Continued.</i>				
Forage, Marine Corps	1898	\$3,000.00	\$1,397.49	\$1,602.51
Forage, Marine Corps	1897	1,027.18	453.30	573.88
Hire of quarters, Marine Corps	{ 1898 1899 }	7,356.00	.....	7,356.00
Hire of quarters, Marine Corps	1898	6,996.00	5,283.86	1,712.14
Hire of quarters, Marine Corps	1897	1,314.54	299.69	1,014.85
Contingent, Marine Corps	{ 1898 1899 }	37,500.00	.....	37,500.00
Contingent, Marine Corps	1898	33,700.00	29,537.08	4,162.92
Contingent, Marine Corps	1897	988.38	988.32	.06
Reimbursement to enlisted men of the Ma- rine Corps for losses .....	.....	51.73	.....	51.73
<i>Bureau of Yards and Docks.</i>				
Maintenance, yards and docks	{ 1898 1899 }	300,000.00	3,305.27	296,694.73
Maintenance, yards and docks	1898	275,000.00	255,255.82	19,744.18
Maintenance, yards and docks	1897	20,993.29	19,118.99	1,874.30
Repairs and preservation, navy-yards	{ 1898 1899 }	400,000.00	11,699.33	388,300.67
Repairs and preservation, navy-yards	1898	440,000.00	379,395.02	60,604.98
Repairs and preservation, navy-yards	1897	34,917.42	30,377.17	4,540.25
Civil establishment, yards and docks	{ 1898 1899 }	72,710.44	.....	72,710.44
Civil establishment, yards and docks	1898	67,110.44	65,316.50	1,793.94
Civil establishment, yards and docks	1897	3,430.80	.....	3,430.80
Contingent, yards and docks	{ 1898 1899 }	20,000.00	.....	20,000.00
Contingent, yards and docks	1898	15,000.00	14,999.07	.93
Contingent, yards and docks	1897	14.78	.....	14.78
Navy-yard, Portsmouth, N. H. ....	.....	9,415.14	.....	9,415.14
Navy-yard, Boston, Mass. ....	.....	30,166.51	.....	30,166.51
Navy-yard, Brooklyn, N. Y. ....	.....	576,252.96	190,404.15	385,848.81
Navy-yard, League Island, Pa. ....	.....	522,556.13	95,170.50	427,385.63
Navy-yard, Washington, D. C. ....	.....	108,396.35	16,794.43	91,601.92
Navy-yard, Norfolk, Va. ....	.....	289,401.08	124,231.74	165,169.34
Navy-yard, Mare Island, Cal. ....	.....	933,284.98	241,509.02	691,775.96
Naval station, Port Royal, S. C. ....	.....	608,089.00	77,705.23	530,383.77
Naval station, Key West, Fla. ....	.....	98,850.40	3,400.40	95,450.00
Naval station, Puget Sound, Wash. ....	.....	212,975.62	15,540.00	197,435.62
Naval Station, Pago Pago, Samoa. ....	.....	56,980.33	.....	56,980.33
Naval station and coaling depots, Isthmus of Panama .....	.....	200,000.00	.....	200,000.00
Naval coaling stations .....	.....	250,000.00	.....	250,000.00
Navy-Yard, Brooklyn, N. Y., extension and improvements .....	.....	607.38	110.20	497.18
Dry dock, Algiers, La. ....	.....	1,712.20	.....	1,712.20
Dry dock, Puget Sound, Wash. ....	.....	87,017.38	60,696.97	26,320.41
Four timber dry docks .....	.....	800,000.00	.....	800,000.00
Steel floating dock, Algiers, La. ....	.....	200,000.00	.....	200,000.00
Board on dry docks .....	.....	1,000.00	1,000.00	.....
Adjustable stern dock .....	.....	3,000.00	.....	3,000.00
Repairs to dry dock, Brooklyn, N. Y. ....	.....	150,000.00	133,152.10	16,847.90
Coaling wharf, Japonski Island, Alaska	.....	5,000.00	.....	5,000.00
Housing torpedo vessels .....	.....	150,000.00	.....	150,000.00
<i>Bureau of Equipment.</i>				
Equipment of vessels	{ 1898 1899 }	1,489,653.40	103,631.44	1,386,021.96
Equipment of vessels	1898	1,558,117.00	1,557,574.16	543.84
Equipment of vessels	1897	130,323.48	129,307.05	1,016.43
Contingent, equipment	{ 1898 1899 }	15,000.00	.....	15,000.00
Contingent, equipment	1898	15,000.00	13,006.83	1,993.17
Contingent, equipment	1897	3,006.90	2,994.24	12.66
Contingent, equipment	1896	75.69	75.69	.....
Civil establishment, equipment	{ 1898 1899 }	15,525.00	.....	15,525.00
Civil establishment, equipment	1898	15,525.00	15,534.96	.....
Civil establishment, equipment	1897	1,280.49	.....	1,280.49
Naval Observatory	{ 1898 1899 }	11,200.00	235.68	10,964.32
Naval Observatory	1898	5,000.00	4,952.23	47.77
Naval Observatory	1897	1,244.40	1,243.42	.98
Ocean and lake surveys	{ 1898 1899 }	14,000.00	.....	14,000.00

APPROPRIATIONS AND EXPENDITURES OF THE UNITED STATES NAVY FOR THE FISCAL YEAR ENDED JUNE 30, 1898—Continued.

Title of appropriation.	Year.	Appropriations and balances.	Net amount drawn out by warrant.	Balance in hand June 30, 1898.
<i>Bureau of Equipment—Continued.</i>				
Ocean and lake surveys	1898	\$14,000.00	\$13,369.87	\$630.13
Ocean and lake surveys	1897	3,093.71	1,358.59	1,735.12
New Naval Observatory	1897	9,190.01	9,127.00	63.01
Depots for coal	1898	250,000.00	.....	250,000.00
<i>Bureau of Navigation.</i>				
Transportation, recruiting and contingent, navigation	{ 1898 } 1899	45,000.00	3,550.00	41,450.00
Transportation, recruiting and contingent, navigation	1898	45,000.00	41,929.69	3,070.31
Transportation, recruiting, and contingent, navigation	1897	10,504.19	5,619.50	4,884.69
Gunnery exercises	{ 1898 } 1899	6,000.00	.....	6,000.00
Gunnery exercises	1898	6,000.00	5,207.22	792.78
Gunnery exercises	1897	1,899.76	1,765.25	103.51
Gunnery exercises	1896	252.95	252.95	.....
Outfits for naval apprentices	{ 1898 } 1899	33,750.00	.....	33,750.00
Outfits for naval apprentices	1898	33,750.00	28,498.20	5,251.80
Outfits for naval apprentices	1897	14,210.71	10,044.65	4,166.06
Naval station, Newport, R. I.	{ 1898 } 1899	1,000.00	.....	1,000.00
Naval station, Newport, R. I.	1898	1,000.00	751.39	248.61
Naval station, Newport, R. I.	1897	2.28	2.28	.....
Naval training station	{ 1898 } 1899	30,000.00	.....	30,000.00
Naval training station	1898	30,000.00	28,459.86	590.14
Naval training station	1897	2,156.28	1,655.42	490.86
Naval War College and Torpedo School	{ 1898 } 1899	19,200.00	.....	19,200.00
Naval War College and Torpedo School	1898	11,200.00	8,771.72	2,428.28
Naval War College and Torpedo School	1897	1,153.49	980.77	172.72
Naval Home, Philadelphia, Pa.	{ 1898 } 1899	77,725.00	.....	77,725.00
Naval Home, Philadelphia, Pa.	1898	77,725.00	68,804.78	9,920.22
Naval Home, Philadelphia, Pa.	1897	18,511.33	16,356.29	2,155.04
Naval training station, California, buildings	1898	50,000.00	.....	50,000.00
<i>Naval Academy.</i>				
Pay, Naval Academy	{ 1898 } 1899	106,401.45	.....	106,401.45
Pay, Naval Academy	1898	106,401.45	106,339.87	61.58
Pay, Naval Academy	1897	463.93	.....	463.93
Repairs, Naval Academy	{ 1898 } 1899	58,032.00	1,400.00	56,632.00
Repairs, Naval Academy	1898	21,000.00	18,970.85	2,029.15
Repairs, Naval Academy	1897	10,185.74	10,146.59	49.15
Repairs, Naval Academy	{ 1898 } 1899	5,000.00	4,641.66	358.34
Heating and lighting, Naval Academy	1898	20,000.00	.....	20,000.00
Heating and lighting, Naval Academy	1898	20,000.00	17,098.74	2,901.26
Heating and lighting, Naval Academy	1897	8,285.31	8,285.05	26
Special course, Naval Academy	{ 1898 } 1899	3,000.00	.....	3,000.00
Special course, Naval Academy	1898	3,000.00	2,521.49	478.51
Special course, Naval Academy	1897	108.70	103.39	5.31
Contingent, Naval Academy	{ 1898 } 1899	45,545.00	.....	45,545.00
Contingent, Naval Academy	1898	43,800.00	38,298.27	5,501.73
Contingent, Naval Academy	1897	12,210.20	10,658.85	1,551.35
Buildings and grounds, Naval Academy	1898	509,528.86	9,299.99	500,228.87
<i>Bureau of Ordnance.</i>				
Ordnance and ordnance stores	{ 1898 } 1899	1,130,000.00	1,400.00	1,128,600.00
Ordnance and ordnance stores	1898	700,000.00	447,238.35	252,761.65
Ordnance and ordnance stores	1897	102,014.85	87,847.88	14,166.97
Torpedo station	{ 1898 } 1899	75,500.00	.....	75,500.00
Torpedo station	1898	71,500.00	58,150.89	13,349.11
Torpedo station	1897	4,179.20	3,686.59	492.61
Contingent, ordnance	{ 1898 } 1899	8,000.00	41.75	7,958.25

**APPROPRIATIONS AND EXPENDITURES OF THE UNITED STATES NAVY FOR THE
FISCAL YEAR ENDED JUNE 30, 1898—Continued.**

Title of appropriation.	Year.	Appropriations and balances.	Net amount drawn out by warrant.	Balance in hand June 30, 1898.
<i>Marine Corps—Continued.</i>				
Forage, Marine Corps	1898	\$3,000.00	\$1,397.49	\$1,602.51
Forage, Marine Corps	1897	1,027.18	453.30	573.88
Hire of quarters, Marine Corps	{ 1898 1899 }	7,356.00	.....	7,356.00
Hire of quarters, Marine Corps	1898	6,996.00	5,283.86	1,712.14
Hire of quarters, Marine Corps	1897	1,314.54	299.09	1,014.45
Contingent, Marine Corps	{ 1898 1899 }	37,500.00	.....	37,500.00
Contingent, Marine Corps	1898	33,700.00	29,537.08	4,162.92
Contingent, Marine Corps	1897	968.38	968.32	.06
Reimbursement to enlisted men of the Ma- rine Corps for losses		51.73	.....	51.73
<i>Bureau of Yards and Docks.</i>				
Maintenance, yards and docks	{ 1898 1899 }	300,000.00	3,305.27	296,694.73
Maintenance, yards and docks	1898	275,000.00	255,255.82	19,744.18
Maintenance, yards and docks	1897	20,993.29	19,118.90	1,874.39
Repairs and preservation, navy-yards	{ 1898 1899 }	400,000.00	11,669.33	388,330.67
Repairs and preservation, navy-yards	1898	440,000.00	379,395.02	60,604.98
Repairs and preservation, navy-yards	1897	34,917.42	30,377.17	4,540.25
Civil establishment, yards and docks	{ 1898 1899 }	72,710.44	.....	72,710.44
Civil establishment, yards and docks	1898	67,110.44	65,316.50	1,793.94
Civil establishment, yards and docks	1897	3,430.80	.....	3,430.80
Contingent, yards and docks	{ 1898 1899 }	20,000.00	.....	20,000.00
Contingent, yards and docks	1898	15,000.00	14,999.07	.93
Contingent, yards and docks	1897	14.78	.....	14.78
Navy-yard, Portsmouth, N. H.		9,415.14	.....	9,415.14
Navy-yard, Boston, Mass.		30,166.51	.....	30,166.51
Navy-yard, Brooklyn, N. Y.		576,252.95	190,404.15	385,848.80
Navy-yard, League Island, Pa.		522,556.13	95,170.50	427,385.63
Navy-yard, Washington, D. C.		108,396.35	16,794.43	91,601.92
Navy-yard, Norfolk, Va.		259,401.06	124,231.74	135,169.32
Navy-yard, Mare Island, Cal.		983,264.98	241,509.02	741,755.96
Naval station, Port Royal, S. C.		608,069.00	77,705.23	530,363.77
Naval station, Key West, Fla.		98,850.40	3,400.40	95,450.00
Naval station, Puget Sound, Wash.		212,975.62	15,540.00	197,435.62
Naval Station, Pago Pago, Samoa.		56,980.33	.....	56,980.33
Naval station and coaling depots, Isthmus of Panama		200,000.00	.....	200,000.00
Naval coaling stations		250,000.00	.....	250,000.00
Navy-Yard, Brooklyn, N. Y., extension and improvements		607.88	110.20	497.68
Dry dock, Algiers, La.		1,712.30	.....	1,712.30
Dry dock, Puget Sound, Wash.		87,017.38	60,696.97	26,320.41
Four timber dry docks		800,000.00	.....	800,000.00
Steel floating dock, Algiers, La.		200,000.00	.....	200,000.00
Board on dry docks		1,000.00	1,000.00	.....
Adjustable stern dock		3,000.00	.....	3,000.00
Repairs to dry dock, Brooklyn, N. Y.		150,000.00	133,152.10	16,847.90
Coaling wharf, Japonski Island, Alaska		5,000.00	.....	5,000.00
Housing torpedo vessels		150,000.00	.....	150,000.00
<i>Bureau of Equipment.</i>				
Equipment of vessels	{ 1898 1899 }	1,489,653.40	103,631.44	1,386,021.96
Equipment of vessels	1898	1,558,117.00	1,557,574.16	542.84
Equipment of vessels	1897	130,323.48	129,307.05	1,016.43
Contingent, equipment	{ 1898 1899 }	15,000.00	.....	15,000.00
Contingent, equipment	1898	15,000.00	13,008.83	1,991.17
Contingent, equipment	1897	3,006.90	2,994.24	12.66
Contingent, equipment	1895	75.00	75.69	.....
Civil establishment, equipment	{ 1898 1899 }	15,525.00	.....	15,525.00
Civil establishment, equipment	1898	15,525.00	15,524.96	.04
Civil establishment, equipment	1897	1,280.49	.....	1,280.49
Naval Observatory	{ 1898 1899 }	11,200.00	235.68	10,964.32
Naval Observatory	1898	5,000.00	4,952.23	47.77
Naval Observatory	1897	1,244.40	1,243.42	.98
Ocean and lake surveys	{ 1898 1899 }	14,000.00	.....	14,000.00

APPROPRIATIONS AND EXPENDITURES OF THE UNITED STATES NAVY FOR THE FISCAL YEAR ENDED JUNE 30, 1898—Continued.

Title of appropriation.	Year.	Appropriations and balances.	Net amount drawn out by warrant.	Balance in hand June 30, 1898.
<i>Bureau of Equipment—Continued.</i>				
Ocean and lake surveys	1898	\$14,000.00	\$13,369.87	\$630.13
Ocean and lake surveys	1897	3,084.71	1,358.59	1,726.12
New Naval Observatory		9,190.01	9,127.00	63.01
Depots for coal		250,000.00		250,000.00
<i>Bureau of Navigation.</i>				
Transportation, recruiting and contingent, navigation	{ 1898 } 1899	45,000.00	3,550.00	41,450.00
Transportation, recruiting and contingent, navigation	1898	45,000.00	41,929.69	3,070.31
Transportation, recruiting and contingent, navigation	1897	10,504.19	5,619.50	4,884.69
Gunnery exercises	{ 1898 } 1899	6,000.00		6,000.00
Gunnery exercises	1898	6,000.00	5,207.22	792.78
Gunnery exercises	1897	1,869.78	1,764.25	105.53
Gunnery exercises	1896	252.95	252.95	
Outfits for naval apprentices	{ 1898 } 1899	33,750.00		33,750.00
Outfits for naval apprentices	1898	33,750.00	28,498.20	5,251.80
Outfits for naval apprentices	1897	14,210.71	10,044.65	4,166.06
Naval station, Newport, R. I.	{ 1898 } 1899	1,000.00		1,000.00
Naval station, Newport, R. I.	1898	1,000.00	751.39	248.61
Naval station, Newport, R. I.	1897	2.28	2.28	
Naval training station	{ 1898 } 1899	30,000.00		30,000.00
Naval training station	1898	30,000.00	29,409.86	590.14
Naval training station	1897	2,156.28	1,665.42	490.86
Naval War College and Torpedo School	{ 1898 } 1899	19,200.00		19,200.00
Naval War College and Torpedo School	1898	11,200.00	8,771.72	2,428.28
Naval War College and Torpedo School	1897	1,153.49	980.77	172.72
Naval Home, Philadelphia, Pa.	{ 1898 } 1899	77,725.00		77,725.00
Naval Home, Philadelphia, Pa.	1898	78,725.00	68,804.78	9,920.22
Naval Home, Philadelphia, Pa.	1897	18,511.33	16,356.29	2,155.04
Naval training station, California, buildings		50,000.00		50,000.00
<i>Naval Academy.</i>				
Pay, Naval Academy	{ 1898 } 1899	106,401.45		106,401.45
Pay, Naval Academy	1898	106,401.45	106,339.87	61.58
Pay, Naval Academy	1897	463.93		463.93
Repairs, Naval Academy	{ 1898 } 1899	58,032.00	1,400.00	56,632.00
Repairs, Naval Academy	1898	21,000.00	18,970.65	2,029.35
Repairs, Naval Academy	1897	10,195.74	10,146.59	49.15
Repairs, Naval Academy	1896	5,000.00	4,641.66	358.34
Heating and lighting, Naval Academy	{ 1898 } 1899	20,000.00		20,000.00
Heating and lighting, Naval Academy	1898	20,000.00	17,098.74	2,901.26
Heating and lighting, Naval Academy	1897	3,285.31	3,285.05	.26
Special course, Naval Academy	{ 1898 } 1899	3,000.00		3,000.00
Special course, Naval Academy	1898	3,000.00	2,521.49	478.51
Special course, Naval Academy	1897	103.70	103.39	.31
Contingent, Naval Academy	{ 1898 } 1899	45,545.00		45,545.00
Contingent, Naval Academy	1898	43,800.00	28,298.27	15,501.73
Contingent, Naval Academy	1897	12,210.20	10,655.95	1,554.25
Buildings and grounds, Naval Academy		509,528.36	9,299.99	500,228.37
<i>Bureau of Ordnance.</i>				
Ordnance and ordnance stores	{ 1898 } 1899	1,120,000.00	1,400.00	1,118,600.00
Ordnance and ordnance stores	1898	700,000.00	447,228.35	252,771.65
Ordnance and ordnance stores	1897	102,014.85	87,847.38	14,167.47
Torpedo station	{ 1898 } 1899	75,500.00		75,500.00
Torpedo station	1898	71,500.00	58,150.89	13,349.11
Torpedo station	1897	4,179.20	3,686.50	492.70
Contingent, ordnance	{ 1898 } 1899	8,000.00	41.75	7,958.25

**APPROPRIATIONS AND EXPENDITURES OF THE UNITED STATES NAVY FOR THE
FISCAL YEAR ENDED JUNE 30, 1898—Continued.**

Title of appropriation.	Year.	Appropriations and balances.	Net amount drawn out by warrant.	Balance in hand June 30, 1898.
<i>Bureau of Ordnance—Continued.</i>				
Contingent, ordnance.....	1898	\$15,000.00	\$14,987.66	\$12.34
Contingent, ordnance.....	1897	652.23	652.29	1.94
Contingent, ordnance.....	1895	16.85	16.85	
Repairs, ordnance.....	{ 1898 } 1899	30,000.00		30,000.00
Repairs, ordnance.....	1898	30,000.00	25,708.46	4,291.54
Repairs, ordnance.....	1897	2,080.73	1,181.51	949.22
Civil establishment, ordnance.....	{ 1898 } 1899	29,324.00		29,324.00
Civil establishment, ordnance.....	1898	29,324.00	28,137.60	1,186.40
Civil establishment, ordnance.....	1897	1,000.00		1,000.00
Naval proving ground.....		700.37	100.00	600.37
Torpedoes.....		142,000.00	135,963.77	6,036.23
Arming and equipping naval militia.....		191,265.99	29,145.76	162,120.23
Reserve projectiles.....		96,644.55	95,747.98	896.57
Reserve guns for auxiliary cruisers.....		777,797.27	536,228.71	241,568.56
Reserve torpedoes and appliances.....		250,000.00		250,000.00
Modern guns and ammunition.....		820.15	820.15	
Modern battery for the Hartford.....		150,000.00	48,627.41	101,372.59
Modern battery for the Chicago.....		50,000.00	7,000.00	43,000.00
Naval magazine, Dover, N. J.....		478.39	430.94	47.45
Naval magazine, Fort Mifflin, Pa.....		70,092.31	25,084.31	45,008.00
Naval magazine, Fort Lafayette, N. Y.....		15,000.00		15,000.00
Removal of magazine, Craney Island.....		88,861.77	88,427.30	434.47
Smokeless powder factory.....		93,727.00		93,727.00
Experiments with armor-piercing projectiles.....		25,000.00		25,000.00
Telephone line to Naval Proving Ground, Indianhead, Md.....		10,000.00		10,000.00
Ordnance material, proceeds of sales.....		80,322.18	36,311.66	44,010.52
<i>Bureau of Construction and Repair.</i>				
Construction and repair.....	{ 1898 } 1899	2,500,000.00	534,093.41	1,965,906.59
Construction and repair.....	1898	2,100,060.00	1,939,321.11	160,738.89
Construction and repair.....	1897	85,919.05	73,558.17	12,360.88
Construction and repair.....	{ 1896 } 1897	8,989.26	1,755.54	7,233.72
Civil establishment, construction, and repair.....	{ 1898 } 1899	23,407.00		23,407.00
Civil establishment, construction, and repair.....	1898	19,972.50	19,256.06	716.44
Civil establishment, construction, and repair.....	1897	1,017.74		1,017.74
Repairs to the Hartford.....		143,461.49	69,203.30	74,258.19
Repairs to the Chicago.....		298,142.30	154,170.78	143,971.52
Repairs to the Constitution.....		3,770.22	3,770.22	
Steam tug, naval station, Port Royal, S. C.....		50,000.00	41,545.61	8,454.39
Steam tug, naval station, Puget Sound, Wash.....		50,000.00	39,803.43	10,196.57
Steel lighter, navy-yard, New York.....		20,000.00	19,806.68	193.32
Coaling barge.....		16,000.00		16,000.00
Model tank, navy-yard, Washington, D. C.....		85,893.64	61,704.79	24,188.85
Construction plant, navy-yard, Portsmouth, N. H.....		50,000.00		50,000.00
Construction plant, navy-yard, Boston, Mass.....		50,000.00		50,000.00
Construction plant, navy-yard, Brooklyn, N. Y.....		50,000.00	132.20	49,867.80
Construction plant, navy-yard, League Island, Pa.....		50,000.00		50,000.00
Construction plant, navy-yard, Norfolk, Va.....		50,000.00		50,000.00
Construction plant, navy-yard, Mare Island, Cal.....		50,000.00		50,000.00
Construction plant, naval station, Port Royal, S. C.....		50,000.00	49,863.28	136.72
Construction plant, naval station, Puget Sound, Wash.....		20,000.00		20,000.00
<i>Bureau of Steam Engineering.</i>				
Steam machinery.....	{ 1898 } 1899	990,000.00	111,559.00	878,441.00
Steam machinery.....	1898	985,000.00	971,610.11	13,389.89
Steam machinery.....	1897	58,592.74	58,575.32	17.42
Steam machinery.....	1896	8,861.24	7,579.59	1,281.65
Steam machinery, special.....		645,267.95	309,870.48	335,397.47
Contingent, steam engineering.....	{ 1898 } 1899	1,000.00		1,000.00
Contingent, steam engineering.....	1898	1,000.00	652.73	347.27
Contingent, steam engineering.....	1897	284.27	267.66	16.62
Civil establishment, steam engineering.....	{ 1898 } 1899	11,900.00		11,900.00

APPROPRIATIONS AND EXPENDITURES OF THE UNITED STATES NAVY FOR THE FISCAL YEAR ENDED JUNE 30, 1898—Continued.

Title of appropriation.	Year.	Appropriations and balances.	Net amount drawn out by warrant.	Balance in hand June 30, 1898.
<i>Bureau of Steam Engineering—Continued.</i>				
Civil establishment, steam engineering	1898	\$11,900.00	\$11,844.85	\$55.15
Civil establishment, steam engineering	1897	.10		.10
Experiments with liquid fuel	{ 1898 1899 }	15,000.00		15,000.00
Machinery plant, navy-yard, Boston, Mass.	1899	15,000.00		15,000.00
Machinery plant, navy-yard, League Island, Pa.		2,219.53	151.37	2,068.16
Machinery plant, navy-yard, Norfolk, Va.		35,000.00		35,000.00
Machinery plant, navy-yard, Mare Island, Cal.		50,000.00	24,040.04	25,959.96
Machinery plant, naval station, Port Royal, S. C.		50,000.00		50,000.00
Machinery plant, naval station, Key West, Fla.		30,000.00		30,000.00
Machinery plant, naval station, Puget Sound, Wash.		30,000.00		30,000.00
<i>Bureau of Supplies and Accounts.</i>				
Provisions, Navy	{ 1898 1899 }	1,405,000.00	3,858.72	1,401,141.28
Provisions, Navy	{ Jan. 1, 1899 }	1,000,000.00	297,706.66	702,293.34
Provisions, Navy	1898	1,405,000.00	1,403,605.24	1,394.76
Provisions, Navy	1897	290,095.28	200,280.49	89,814.79
Contingent, supplies and accounts	{ 1898 1899 }	50,000.00	175.10	49,824.90
Contingent, supplies and accounts	1898	50,000.00	49,978.92	21.08
Contingent, supplies and accounts	1897	2,001.83	1,993.21	8.62
Contingent, supplies and accounts	1896	49.03	49.03	
Civil establishment, supplies and accounts	{ 1898 1899 }	70,432.03		70,432.03
Civil establishment, supplies and accounts	1898	70,432.03	66,215.14	4,216.89
Civil establishment, supplies and accounts	1897	4,876.98		4,876.98
Transportation, naval supplies		13,010.29	231.41	12,778.88
Clothing and small stores fund		1,756,417.28	860,118.62	896,298.66
Naval supply fund		1,200,454.62	469,098.05	731,356.57
<i>Bureau of Medicine and Surgery.</i>				
Medical department	{ 1898 1899 }	75,000.00		75,000.00
Medical department	1898	75,000.00	70,908.70	4,091.30
Medical department	1897	10,023.18	9,656.10	367.08
Repairs, medicine and surgery	{ 1898 1899 }	20,000.00	18.00	19,982.00
Repairs, medicine and surgery	1898	20,000.00	15,171.02	4,828.98
Repairs, medicine and surgery	1897	2,018.59	1,960.28	58.31
Contingent, medicine and surgery	{ 1898 1899 }	30,000.00	148.00	29,852.00
Contingent, medicine and surgery	1898	30,000.00	21,965.87	8,034.13
Contingent, medicine and surgery	1897	4,289.66	4,287.13	2.53
Naval hospital fund	{ 1898 1899 }	20,000.00		20,000.00
Naval hospital fund	1898	20,000.00	20,000.00	
Ambulances for naval hospitals	{ 1898 1899 }	600.00		600.00
Ambulances for naval hospitals	1898	1,200.00	1,200.00	
Ambulances for naval hospitals	1897	20.00		20.00
Naval cemetery, Norfolk, Va.	{ 1898 1899 }	1,000.00		1,000.00
Naval hospital, Chelsea, Mass.	1898	6,000.00	3,456.60	2,543.40
Naval hospital, Port Royal, S. C.		4,000.00		4,000.00
Naval hospital for contagious diseases, New- port, R. I.		6,500.00		6,500.00
Naval cemetery, Brooklyn, N. Y.		1,000.00		1,000.00
Naval hospital fund		334,979.89	148,147.62	185,932.27
<i>Miscellaneous appropriations.</i>				
Pay of the Navy, certified claims		22,262.01	21,384.60	877.41
Pay, miscellaneous certified claims		231.97	189.30	42.67
Pay of Marine Corps, certified claims		9,808.51	8,906.13	902.38
Provisions, Marine Corps, certified claims		15.50	15.50	
Contingent, Marine Corps, certified claims		49.58	49.58	
Maintenance, yards and docks, certified claims		19.93	19.93	
Contingent, navigation, certified claims		.80		.80
Transportation, recruiting, and contingent, navigation, certified claims		191.84	191.84	

APPROPRIATIONS AND EXPENDITURES OF THE UNITED STATES NAVY FOR THE
FISCAL YEAR ENDED JUNE 30, 1898—Continued.

Title of appropriation.	Year.	Appropriations and balances.	Net amount drawn out by warrant.	Balance in hand June 30, 1898.
<i>Miscellaneous Appropriations—Continued.</i>				
Transportation and recruiting equipment, certified claims		\$70.50		\$70.50
Contingent, equipment, certified claims		354.14	\$256.73	97.41
Contingent, ordnance, certified claims		57.28	57.28	
Provisions, Navy, certified claims		16,008.95	4,437.14	11,568.81
Contingent, supplies and accounts, certified claims		570.75	570.75	
Construction and repair, certified claims		237.07	237.07	
Steam machinery, certified claims		278.78	278.78	
Contingent, medicine and surgery, certified claims		6.82	6.82	
Allowance for reduction of wages under eight- hour law, certified claims		18.00		18.00
Bounty for destruction of enemy's vessels, certified claims		254.27	25.17	229.10
Destruction of clothing and bedding for sani- tary reasons, certified claims		164.98	67.95	97.03
Indemnity for lost clothing, certified claims		661.38	180.00	661.38
Indemnity for lost property, naval service, certified claims		66.00	66.00	
Twenty per cent additional compensation, certified claims		108.18		108.18
Enlistment bounties to seamen, certified claims		2,617.96	2,092.96	525.00
Extra pay to officers and men who served in the Mexican war		2,656.50	2,656.50	
Indemnity for lost property, naval service		40.25	40.25	
Mileage, Navy, Graham decision		12,315.11	11,648.63	666.48
Navy transportation, Pacific roads	1898	2,797.62	2,797.62	
Navy transportation, Pacific roads	1897	8,058.96	8,058.96	
Navy transportation, Pacific roads	1896	3.01	3.01	
Payment on account of purchase of steamers De Soto and Bienville		24,606.28		24,606.28
Payment of Japanese award		29,992.35	595.90	29,397.65
Payment to Richmond Locomotive and Ma- chine Works for losses in construction of the U. S. S. Texas		69,550.39	69,550.39	
Relief of persons impressed into the naval service		732.60	732.60	
Relief of sufferers by wreck of United States steamers at Apia, Samoan Islands		270.25	270.25	
Relief of legal representatives of John Roach, deceased		28,160.25	28,160.25	
Payment to legal representatives of John Roach, deceased		330,151.42	330,151.42	
Recovering remains of officers and men and property from wreck of U. S. S. Maine		300,000.00	50,621.92	149,378.08
Removal of remains of officers and men who perished by destruction of the U. S. S. Maine		10,000.00		10,000.00
Relief of sufferers by the destruction of the U. S. S. Maine		63,858.19	63,858.19	
Survey of Pearl Harbor, Hawaiian Islands		10,000.00	2,170.20	7,829.80
Sword of honor to Commodore George Dewey, and medals commemorating the battle of Manila Bay		10,000.00		10,000.00

APPROPRIATIONS AND EXPENDITURES OF THE UNITED STATES NAVY FOR THE FISCAL YEAR ENDED JUNE 30, 1898—Continued.

Title of appropriation.	Year.	Appropriations and balances.	Net amount drawn out by warrant.	Amount carried to the surplus fund.
<i>Miscellaneous Appropriations—Continued.</i>				
Pay of the Navy.....	1895	\$1,830.45	\$1,835.00	\$5.45
Pay of the Navy.....	1894	37.81	36.53	1.29
Pay, miscellaneous.....	1895	1,010.51	833.64	676.87
Contingent, Navy.....	1896	1,803.42	.....	1,803.42
Pay of the Marine Corps.....	1894	1,000.00	863.15	136.85
Provisions, Marine Corps.....	1895	2,317.14	.....	2,317.14
Provisions, Marine Corps.....	1896	4,427.67	.....	4,427.67
Clothing, Marine Corps.....	1896	1,003.73	.....	1,003.73
Fuel, Marine Corps.....	1896	6,299.82	.....	6,299.82
Military stores, Marine Corps.....	1896	1,296.24	.....	1,296.24
Transportation and recruiting, Marine Corps.....	1896	4,929.21	.....	4,929.21
Repairs of barracks, Marine Corps.....	1896	51.78	.....	51.78
Forage, Marine Corps.....	1896	448.54	442.13	6.41
Hire of quarters, Marine Corps.....	1896	804.80	.....	804.80
Contingent, Marine Corps.....	1896	2,914.42	2,794.92	129.50
Maintenance, yards and docks.....	1896	755.57	88.49	717.08
Civil establishment, yards and docks.....	1896	4,713.37	.....	4,713.37
Contingent, yards and docks.....	1896	117.21	.....	117.21
Repairs and preservation, navy yard.....	1896	2,147.10	44.00	2,103.10
Construction of dock, Port Royal, S. C.....	.....	87	.....	87
Equipment of vessels.....	1896	25,858.72	16,845.00	9,013.72
Civil establishment, equipment.....	1896	1,190.90	.....	1,190.90
Contingent, equipment.....	1896	4,089.21	4,084.70	4.51
Naval Observatory.....	1896	1.55	.....	1.55
Ocean and lake surveys.....	1896	480.37	2.79	477.58
Naval Observatory, buildings.....	.....	4.89	.....	4.89
Transportation, recruiting, and contingent, navigation.....	1896	5,508.50	5,554.70	43.89
Outfit for naval apprentices.....	1896	3,871.05	.....	3,871.05
Naval training station.....	1896	29.32	16.69	12.63
Naval War College and Torpedo School.....	1896	92.06	.....	92.06
Naval station, Newport, R. I.....	1896	.84	.....	.84
Naval Home, Philadelphia.....	1896	2,725.75	.....	2,725.75
Pay, Naval Academy.....	1896	1,198.54	870.68	322.86
Heating and lighting, Naval Academy.....	1896	13.08	.....	13.08
Special course, Naval Academy.....	1896	35.80	.....	35.80
Contingent, Naval Academy.....	1896	236.29	15.20	211.09
Ordnance and ordnance stores.....	1896	5,283.31	2,750.00	2,533.31
Repairs, ordnance.....	1896	482.68	.....	482.68
Torpedo station.....	1896	713.27	.....	713.27
Civil establishment, ordnance.....	1896	1,483.35	.....	1,483.35
Contingent, ordnance.....	1896	1,040.63	47.78	992.85
Testing high explosives.....	.....	27,144.24	27,143.06	1.18
Construction and repair.....	1896	8.63	.14	8.49
Civil establishment, construction and repair.....	1896	1,059.38	.....	1,059.38
Steam tug for navy yard, Mare Island.....	.....	.05	.....	.05
Steam machinery.....	1895	12.52	.....	12.52
Civil establishment, steam engineering.....	1896	67.48	.....	67.48
Contingent, steam engineering.....	1896	32.00	.....	32.00
Provisions, Navy.....	1896	4,091.11	957.27	3,133.84
Civil establishment, supplies and accounts.....	1896	4,653.49	.....	4,653.49
Contingent, supplies and accounts.....	1896	1,145.51	626.44	519.07
Provisions, Navy.....	1895	8,557.58	.....	8,557.58
Medical department.....	1896	2,645.72	2,541.03	104.69
Repairs, medicine and surgery.....	1896	13.31	.....	13.31
Contingent, medicine and surgery.....	1896	1,137.21	1,083.14	54.07
Contingent, medicine and surgery.....	1895	112.24	110.74	1.50
Indemnity for lost clothing.....	.....	60.00	.....	60.00
Increase of the Navy, training vessels for Naval Academy.....	.....	125,000.00	.....	125,000.00
Total appropriations and balances.....	.....	.....	.....	\$135,634,910.41
Net amount drawn out by warrant.....	.....	.....	\$57,134,917.15	.....
Carried to surplus fund.....	.....	.....	199,052.81	.....
Balance unexpended June 30, 1898.....	.....	.....	.....	57,335,969.96
Balance unexpended June 30, 1898.....	.....	.....	.....	78,298,940.45

In addition to the sum of \$78,298,940.45 available June 30, 1898, the general deficiency act of July 7, 1898, appropriated \$44,541,261.66, which is not included in the foregoing statement, making the total available appropriations for the naval service \$122,840,202.11.

REPORT OF THE SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, D. C., November 29, 1898.

To the PRESIDENT :

I have the honor to submit the annual report of this Department:

In my report for last year there were published the report of the Major-General Commanding the Army, and synopses of the reports of chiefs of bureaus, with recommendations for such legislation as would tend to better administration. The full reports are also submitted herewith.

The work for the year was thus reviewed, and as that plan proved satisfactory it is followed this year.

The reports of the Major-General Commanding the Army, of Major-General Merritt, commanding the troops in the Philippines, and of Major-General Shafter, commanding the troops in Cuba, and are published in full in this report, together with correspondence, telegraphic and otherwise, relating to the war. Each tells his story in his own way. The synopses of chiefs of bureaus follow, with such comments and recommendations as are deemed appropriate and necessary; also an extract from the report made by Major-General Breckinridge, Inspector-General, who was sent by the Major-General Commanding the Army to observe the operations of the Army at Santiago and to report thereon.

THE ARMY.

War with the Kingdom of Spain was declared April 21, 1898. By proclamation of April 23 the President called for 125,000 volunteers, and on May 25 he called for an additional force of 75,000. Congress also authorized an increase of the Regular Army to 61,000 men, and in addition provided for 16 regiments of volunteer infantry (immunes), cavalry, and engineers.

The appropriation of \$50,000,000 for the national defense, made by Congress on the 9th day of March last without a dissenting vote, roused the enthusiasm of the people, fusing all shades of opinion into one patriotic thought.

Casualties: 17 enlisted men killed, 10 officers and 96 enlisted men wounded.

PORTO RICO CAMPAIGN.

The Major-General Commanding the Army sailed from Charleston, S. C., July 9, arriving off Santiago July 11. The same day he went on shore, communicated with General Shafter, and arrived at the latter's headquarters on the following day, July 12. On July 14 General Miles returned to Siboney, moved all the troops then on transports to Guantanamo, about 40 miles east of Santiago, where he organized his expedition, and sailed for Porto Rico July 21, landing at Guanica July 25. Other troops under command of Major-General Brooke arrived at Guanica July 27; at Guayama, July 31; at Ponce, August 2; at Arroyo, August 3; and at Ponce, August 16.

July 25, after a short skirmish, the Spanish troops were driven from Guanica, and the American flag was raised on the island. July 26, in an engagement at Yauco, the enemy was defeated. July 27 the navy entered the harbor of Ponce, and the next day the army took possession of the city, the troops being pushed well forward on the San Juan road, whence the enemy had withdrawn.

August 5 the troops under General Brooke had an engagement with the enemy at Guayama, which was finally occupied by our forces. August 8 there was an action near Guayama, the Spanish being driven in the direction of Cayey. August 9 troops advanced from Yauco, occupying, successively, Sabana Grande, San German, Lares, and Arecibo, entering Mayaguez, after an engagement August 10 near Hormigueros. At Coamo an engagement took place August 9, the enemy being defeated and 167 prisoners taken. At Asomanto, August 12, the enemy's position was shelled, and on August 13, the command being ready to move forward, orders were received suspending hostilities.

Prior to the signing of the protocol on the 12th of August, the forces under General Miles in Porto Rico had participated in six engagements, and had occupied a large portion of the island.

The loss of the enemy was reported to be much greater than our own, which was 3 enlisted men killed and 4 officers and 36 enlisted men wounded.

August 30 General Miles sailed for the United States, turning over the command of the troops in Porto Rico to Major-General Brooke. The final evacuation of Porto Rico by the Spanish troops occurred October 18, and on that date the American flag was hoisted over the public buildings and forts at San Juan.

HAWAIIAN ISLANDS.

July 7 Congress ratified the cession of the Hawaiian Islands to the United States. Troops sailed for Honolulu July 29. August 17 our flag was raised over the islands.

MUSTER OUT OF VOLUNTEERS.

August 18 an order was issued to muster out 100,000 volunteers, which is being carried out.

Thus an army of about 250,000 volunteers and recruits for the regulars was called into existence from civil life, which, with the Regular Army, made a total force of 274,717 men. It was organized, armed, and equipped (no supplies being on hand other than those for the regulars, save Springfield muskets), and 50,000 men of this force were transported by land and sea to battlefields in the tropics 12,000 miles apart, where they won their victories without a single defeat, and all within the period of one hundred and thirteen days from the declaration of war to the signing of the protocol.

This great achievement can be credited to no individual; it belongs to the nation. It was accomplished through the intelligence and patriotism of all who served, from the commander in chief to the private in the ranks. It also speaks volumes for the prompt, patriotic, and intelligent assistance of the people who furnished in so short a period the supplies necessary to prepare this great army for the field. To the heroic men who served in distant lands the country will ever offer a true meed of praise; but the mighty army in camp, ready and eager to take the field, should also be given equal credit. It was their presence, ready at an hour's notice for any emergency, that overawed the enemy and proved to him that further resistance would be in vain.

DEATHS IN THE ARMY.

The deaths in the Army from May 1 to October 1, including killed, died of wounds and of disease, were 2,910, the smallest death rate recorded of any army in history, a most gratifying fact when it is considered that over 50,000 of our troops, born and reared in the temperate zone, were campaigning in tropical climates, subject to rain and heat almost unprecedented.

FURLONGHS.

The volunteers mustered out were granted one and two months' furlough before discharge and final payment. In the summer months this was an indulgence. To do so in winter months would, in many of the States, be a hardship. In order that all may be dealt with alike, it is recommended that the officers and men of the volunteer troops yet to be mustered out be given two months' pay at the time of discharge. This would admit of their prompt discharge in their present camps in the South.

INCREASE OF THE PERMANENT ESTABLISHMENT.

In view of the needs of a military force in the islands occupied by the United States it is earnestly recommended that the Regular Army be permanently increased to 100,000 men and the requisite officers;

that a portion of this Army be recruited from the inhabitants of those islands, to be mustered into the service of the United States, and commanded by officers of our Army, discretion, however, to be given the President to make appointments of officers from the force so recruited.

These men are acclimated, understand the language and habits of their countrymen, and their enlistment will not only give them employment but also have a tendency to enable the Government to get into closer touch with their people than it would otherwise be able to do. This would also relieve our own people from serving in those climates to a large extent, and would, moreover, enable the volunteers to be mustered out of the service and return to the avocations of civil life.

The distinction between the regular and the volunteer is very sharply drawn. The regular enters the service because he prefers the life of a soldier. Not so the volunteer. He enlists for an active campaign, when that is over and the enemy has laid down its arms, at once desires to return to civil life.

CONSTABULARY FORCE.

In the cities of Cuba, Porto Rico, and the Philippines there should also be employed and sworn into the service of the United States a constabulary force for police duty—men who have had experience and who can speak the languages of those islands, thus relieving our soldiers from that work.

SUPPLIES FOR THE CUBANS.

Under an act entitled "An act to provide assistance to the inhabitants of Cuba, and arms, munitions, and military stores to the people of the Island of Cuba, and for other purposes," approved May 18, 1898, large quantities of subsistence stores, ordnance and ordnance stores, medicines and medical supplies, and engineer property, as contemplated by the above act, were sent to the Island of Cuba under the direction of the Major-General Commanding the Army.

A full and detailed report is now in course of preparation by the Assistant Secretary of War, and will be made the subject of a future communication to Congress.

RELIEF OF THE DESTITUTE.

To supply food for the destitute, especially in Cuba, is a question that must tax this Government greatly, for a time at least. It is a question of humanity to which we can not turn a deaf ear. Employment is essential to contentment; idleness breeds indolence. The effort should be made to aid those people by giving them work, so they may feel that they are earning their own bread instead of living upon charity.

Would it not be wise economy for the Government of the United States to construct a substantial railroad, practically the whole length of the Island of Cuba, with branch roads to the leading cities on the coast? Such a road would, of course, cost a large sum, perhaps \$20,000,000; but it would give employment to the people of Cuba, teach them habits of industry, be an inducement for them to cultivate their farms, and thus furnish supplies for the laborers and for market when the road is constructed. This, in my judgment, is absolutely essential to the pacification and development of that great island. It will bring its minerals, lumber, and agricultural products to market and open up communication with all parts of the island with the least possible delay. The road would be a good property, and when it had served its purpose for the Government could be sold for its cost. If such an improvement is not made, the Government will no doubt expend fully that amount in charity.

Even if this road be built, there is immediate necessity for a large appropriation to relieve the destitute. Many of the Cubans have no means of support, no homes, little clothing, no animals or farming tools, and no seed for planting.

SANITATION.

The question of sanitation of the cities of Cuba and Porto Rico should have immediate and careful attention, not only for the benefit of the people of the islands, but also to stamp out the scourge of yellow fever which is yearly brought to this country. A sufficient part of the customs duties and other taxes collected in those islands should be expended for this work.

ALASKA.

Military exploring parties have been in the field during the past season and their reports will be transmitted to Congress as soon as received. That country is a vast one and the developments that are constantly being made show that it has great possibilities in store for it. Its mining industries will in the near future call to that Territory a large number of people, and those who go there will need some power to control and to protect them. The Department has endeavored to meet this need by stationing troops at St. Michaels and also at several points along the Yukon.

Troops were sent there in September, 1897. Some of them were relieved this year and others sent in their places with ample supplies for them until the opening of navigation in 1899, and there has also been shipped quite a large amount of extra supplies for emergencies. The force now stationed in Alaska consists of two companies and a detachment of infantry and one battery of artillery. A sufficient force should be stationed there to guard our interests and to encourage investors to go to that country, and thus aid in its development.

On December 18, 1897, \$200,000 were appropriated by Congress and placed in the hands of the Secretary of War for the relief of people in the Yukon River country or other mining regions of Alaska. Thousands of people and nearly, if not all, boards of trade on the Pacific coast were very strong in their demands for immediate relief to be sent there, as it was believed many thousands were starving.

Reindeer were purchased abroad and shipped to Dyce; supplies were sent there, and arrangements made by various modes of conveyance for getting these supplies to Dawson City and the Yukon country. As reports subsequently received showed that the suffering was not of such a character as had been represented, the expedition was abandoned, most of the reindeer were turned over to the Interior Department, and the supplies sold as provided by the act making the appropriation. The amount expended was \$142,665.73.

A portion of the balance of the appropriation will probably be needed to meet outstanding indebtedness and claims not yet adjusted.

A report in detail will be submitted to Congress as required by the act making the appropriation.

STATUES.

GENERAL GRANT.

In my last annual report the recommendation of my predecessor for the erection of a statue to General Grant was renewed. This can not be too strongly urged, and it is therefore again recommended that provision be made for a suitable monument, which shall be a fitting tribute to the memory of that distinguished soldier.

GENERAL SHERMAN.

A temporary wooden building as a studio for the sculptor has been erected in the northeast corner of the public grounds south of the Treasury Department near the site selected for the statue. The foundation for the pedestal and statue is now being constructed.

GENERAL SHERIDAN.

The statue is to be erected in the plat of ground at the intersection of Pennsylvania avenue and E street NW. The contract for the statue has been let to Mr. J. Q. A. Ward, of New York City, by the committee of the Society of the Army of the Cumberland.

GENERAL LOGAN.

The polished granite base for the pedestal of the statue was erected in September, 1897, in Iowa Circle, upon the foundation constructed, and the bronze pedestal has been received and placed in position upon the base, in readiness to receive the statue when completed. The con-

tract required the statue to be completed in its entirety by December, 1898, but owing to certain changes in the pedestal and the enlargement of the historical figures thereon it was found impossible to complete the statue within the time specified, and upon the recommendation of the Chief of Engineers an extension of one year has been granted the contractor.

CLERICAL FORCE.

The clerical force of the Department was reduced 28 per cent in 1894. This reduction was made at the time the business of the country was very much prostrated. As soon as business revived the force was found inadequate, and when the war commenced it was sadly lacking. An increase was immediately needed, and funds for the purpose were allotted from the \$50,000,000 appropriated for the national defense, supplemented by deficiency appropriations.

CHIEF CLERK.

The chief clerk has served for thirty-four years in the Department and in his present capacity for sixteen years, upon a salary not at all commensurate with his ability and far below what he has fairly earned. I earnestly recommend again that he be commissioned a lieutenant colonel in the Army, as provided in H. R. 10608, Fifty-fifth Congress, second session, which, while it will not increase his pay very materially, will insure to him a comfortable living when, several years hence, he shall have passed the age at which army officers are retired. He has worthily earned this recognition and should receive it for his services in this Department, where in addition to his other duties he has often acted for the Secretary of War, under the act of March 4, 1874 (18 Stat., 19), and for his services in the Army, for which he received a Congressional medal of honor.

SECOND ASSISTANT SECRETARY OF WAR.

Legislation to authorize the appointment of a Second Assistant Secretary of War is again urged.

RECOMMENDATIONS RENEWED.

In addition to those renewed in the body of the report, the following recommendations in the last annual report are again made:

That the law which authorizes the detail of officers to colleges *having a capacity to educate* 150 pupils at one time be amended to authorize the detail at such colleges as have not less than 150 pupils *actually present* for instruction.

That an appropriation be made for the construction of the ship canal to connect Lakes Union and Washington with Puget Sound.

That an annual appropriation of \$150 be made for the purpose of cleaning and preserving the public monuments in the District of Columbia under the control of this Department.

COMMENDATION.

I can not in words express my appreciation for their services, nor can the country overestimate the work of the heads of the several bureaus since war was declared. They knew no hours except all hours, nor days except every day in the week. The Assistant Secretary of War, at his post, day and night, has shared the burden in a very able and conscientious manner; and the clerks of the Department have been untiring and efficient in their efforts to carry their full share of the work. All have been ceaseless in their toil, able and patriotic in their labors, and for it they should receive the grateful thanks of the nation.

EXPENDITURES, APPROPRIATIONS, AND ESTIMATES.

The ordinary expenditures for the fiscal year ended June 30, 1898, the ordinary appropriations for the present fiscal year, and the estimates of amounts required for the fiscal year ending June 30, 1900, are as follows:

General object.	Expenditures from ordinary appropriations for the fiscal year ended June 30, 1898.	Ordinary appropriations for the fiscal year ending June 30, 1899.	Estimates of all amounts required for the fiscal year ending June 30, 1900.
Salaries and contingent expenses	\$1,449,035.40	\$1,438,626.00	\$2,193,656.00
Pay, etc., of the Army.....	14,488,336.28	14,106,665.20	55,430,909.22
Subsistence of the Army.....	1,574,276.80	1,550,000.00	17,682,437.50
Regular supplies, Quartermaster's Department.....	2,003,389.37	1,800,000.00	14,000,000.00
Incidental expenses, Quartermaster's Department....	621,755.99	600,000.00	3,900,000.00
Barracks and quarters and hospital construction....	858,979.34	847,000.00	2,670,000.00
Shooting ranges and contingent expenses of the Army..	35,104.30	33,390.00	469,390.00
Cavalry and artillery horses.....	129,775.60	130,000.00	845,000.00
Army transportation.....	2,711,984.78	2,300,000.00	29,813,675.00
Clothing, etc.....	1,277,228.82	975,000.00	14,744,431.00
Medical Department.....	144,791.86	130,000.00	2,115,200.00
Ordnance Department.....	1,708,915.54	1,150,000.00	2,940,100.00
Fortifications and sea-coast defenses.....	8,713,880.92	9,377,494.00	12,151,898.00
Arsenals, etc.....	263,082.67	324,225.00	552,547.00
Military Academy.....	562,346.24	458,689.23	681,866.99
Rivers and harbors.....	21,096,053.45	14,854,459.56	28,523,778.00
Parks, cemeteries, military posts, etc.....	806,811.24	1,195,134.75	1,467,744.00
National Soldiers' Homes.....	2,999,582.36	3,666,021.00	3,974,544.00
Artificial limbs, appliances, etc.....	184,844.81	127,575.00	555,275.00
Buildings and grounds in and around Washington...	113,863.78	127,076.00	127,126.00
Miscellaneous items.....	796,745.06	460,680.00	410,600.00
Total.....	62,534,784.61	55,652,035.74	195,250,377.71

Expenditures from permanent annual appropriations and appropriations for war claims are not included in the above statement, but are shown in the appendix to this report.

The expenditures prior to July 1, 1898, the appropriations for the six months ending December 31, 1898, and the estimates for the six months

ending June 30, 1899, covering the extraordinary appropriations made necessary by the war with Spain, are as follows:

General object.	Expenditures from extraordinary war appropriations prior to July 1, 1898.	Extraordinary war appropriations made available until Jan. 1, 1899.	Estimates of extraordinary appropriations required for the six months ending June 30, 1899.
Salaries and contingent expenses	\$25,000.00	\$312,000.00	\$320,000.00
Pay, etc., of the Army	6,225,000.00	50,380,199.39	18,823,475.94
Subsistence of the Army	4,848,164.56	23,106,755.78	11,876,025.00
Regular supplies Quartermaster's Department	600,743.49	13,500,000.00	5,646,200.00
Incidental expenses, Quartermaster's Department	81,915.33	6,000,000.00	1,350,000.00
Barracks and quarters	30,800.00	2,750,000.00	.....
Contingent expenses of the Army	120,000.00	422,000.00	200,000.00
Cavalry and artillery horses	1,157,499.14	5,500,000.00	292,500.00
Army transportation	4,932,431.49	59,000,000.00	12,294,225.00
Clothing, etc	4,208,513.87	36,000,000.00	6,401,614.00
Medical department	100,000.00	604,000.00	2,300,000.00
Ordnance department	112,642.24	14,261,225.00	673,500.00
Fortifications and sea-coast defenses	79,500.00	8,714,898.00	.....
Miscellaneous items	542,834.00	1,277,034.00	.....
Total	22,564,744.12	221,828,112.17	60,177,539.84

\$2,250,000 of the appropriation for barracks and quarters was made available by Congress until June 30, 1899.

There has been allotted to the War Department from the \$50,000,000 national defense fund the sum of \$18,794,627.68 for the purposes indicated in the following tabulated statement:

Condition of the special emergency appropriation for national defense (war) under the War Department.

Allotments.	Amounts allotted to Nov. 23, 1898.	Balances available Nov. 23, 1898.
Office of Secretary of War	\$150,000.00	\$84,634.00
Ordnance Department	9,081,496.86	4,437,077.71
Engineer Department	5,585,000.00	376,375.08
Quartermaster's Department	1,989,230.82	811.07
Subsistence Department .....	.....	.....
Medical Department	1,520,000.00	596,306.38
Pay Department	155,000.00	23,121.44
Signal Service	236,900.00	10.00
Light-House Board	75,000.00	5,124.00
Total	18,794,627.68	5,463,670.38

The summary of all expenditures for the fiscal year 1898, the appropriations for 1899, and the estimates for the fiscal year 1900, together with the supplemental estimates for the second six months of the present fiscal year, is as follows:

General object.	Expenditures for the fiscal year ended June 30, 1898.	Appropriations for the fiscal year ending June 30, 1899 (including Spanish war appropriations).	Estimates for the second half of the fiscal year 1899, and the fiscal year ending June 30, 1900.
Salaries, contingent expenses, etc	\$1,474,035.40	\$1,750,626.00	\$2,513,656.00
Military establishment (support of the Army and Military Academy)	55,476,355.52	254,926,123.28	204,976,971.35
Public works (including river and harbor improvements)	31,013,597.10	34,392,890.31	42,852,991.20
Miscellaneous	4,169,653.01	4,653,156.00	5,084,299.00
Grand total	92,133,641.03	295,722,795.59	255,427,917.55

EXPEDITIONARY FORCE TO CUBA.

The appropriation for the expeditionary force to Cuba was expended under the direction of the Major-General Commanding the Army. His report on the subject follows:

HEADQUARTERS OF THE ARMY, *Washington, D. C., November 25, 1898.*

SIR: In compliance with your directions, received through the Assistant Secretary of War, I have the honor to submit, herewith, a statement relative to the appropriation for the "Expeditionary force to Cuba."

This appropriation was made in two acts; the first, that approved May 4, 1898, appropriated \$150,034, "to be available until expended." The second, that approved June 8, 1898, appropriated \$350,000, to be "available for payment of liabilities which may be incurred to and including December 31, 1898." Both were "to be expended under the direction of the Major-General Commanding the Army."

The expenditures from this appropriation were made in preparing for and in the execution of the operations of the army in Cuba and Porto Rico.

On October 31 there remained on hand \$344,000 of the total appropriation of \$500,034. About \$60,000 (estimated) of this amount will be required to make the final settlement of outstanding indebtedness. The balance remaining will then be returned to the Treasury.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

Hon. RUSSELL A. ALGER,
Secretary of War, Washington, D. C.

REPORT OF THE MAJOR-GENERAL COMMANDING THE ARMY.

HEADQUARTERS OF THE ARMY, *Washington, D. C., November 5, 1898.*

SIR: I have the honor to submit herewith the reports of Maj. Gen. Wesley Merritt, commanding Philippine expedition; Maj. Gen. John R. Brooke (operations in Porto Rico); Maj. Gen. William R. Shafter, U. S. V. (operations at Santiago de Cuba); Maj. Gen. H. C. Merriam, U. S. V., commanding Departments of California and the Columbia; Brig. Gen. A. C. M. Pennington, U. S. V., commanding Department of the Gulf; Brig. Gen. J. M. Bacon, U. S. V., commanding Departments of Dakota and the Lakes; Brig. Gen. E. V. Sumner, U. S. V., commanding Departments of the

Colorado and the Missouri; Brig. Gen. G. L. Gillespie, U. S. V., commanding Department of the East; also reports of the Adjutant-General, United States Army; the Inspector-General, United States Army; the commandant of the Artillery School, Fort Monroe, Va.; the commandant of the United States Infantry and Cavalry School, Fort Leavenworth, Kans., and the commandant of the Cavalry and Light Artillery School, Fort Riley, Kans.

The following reports of corps commanders Maj. Gen. John J. Coppinger, commanding Fourth Army Corps; Maj. Gen. Fitzhugh Lee, commanding Seventh Army Corps; and Brig. Gen. R. T. Frank, commanding Third Army Corps (the only ones received up to the present date) are also submitted.

The reports of operations of the following general officers who served in Porto Rico are also submitted: Maj. Gen. J. H. Wilson, U. S. V.; Brig. Gen. G. V. Henry, U. S. V.; Brig. Gen. Theodore Schwan, U. S. V., and Brig. Gen. G. A. Garretson, U. S. V.

The military operations during the year have been extraordinary, unusual, and extensive.

Early in the fiscal year troops were engaged in transporting supplies to citizens in Alaska, and since then in exploring expeditions through that extensive Territory. These expeditions have been under the direction of Lieut. Col. G. M. Randall, Eighth Infantry (now brigadier-general, United States Volunteers); Capt. P. H. Ray, Eighth Infantry (now colonel Third United States Volunteer Infantry); Capt. W. R. Abercrombie, Second Infantry; Capt. E. F. Glenn, Twenty-fifth Infantry, and Capt. W. P. Richardson, Eighth Infantry, and are still under the direction of Captains Abercrombie and Richardson.

Information recently received from one of the most intelligent frontiersmen and explorers in our service, Mr. Luther S. Kelly, who has been with Captain Glenn's command, indicates that they have successfully explored the country and discovered a route from Portago Bay to the Kaik River, which, connecting with Lieutenant Castner's trail up the Matanuska River, insures a practicable route entirely through our own territory to the Tanana River. A good pack trail or wagon road can be built from Portago Bay to the Kaik, and would be of great service to the enterprising and venturesome prospectors and miners who occupy that region.

THE WAR WITH SPAIN.

At the close of the great civil war the Government had a million veterans in arms, well equipped for war for that time. The great amount of war material then in the possession of the Government was sold or gradually used up by issue either to the militia of the States or to the regular forces that have been engaged in military operations on the frontier for the last thirty years. The supplies and materials that were not sold, but stored, were gradually reduced to the minimum, and the war with Spain found this country with a very small army—25,000 men—with war material sufficient only to equip that force and furnish it with a small amount of ammunition; but the tentage, transportation, and camp equipage was insufficient for any important military operations; in fact, quite an amount of valuable transportation, including ambulances, had been disposed of within the last few years.

Prior to the passage of the joint resolution of Congress approved April 20, 1898, demanding that the Government of Spain relinquish its authority and government in the Island of Cuba, etc., Congress had appropriated \$50,000,000 for the national defense, and in the interim between this time and actual hostilities efforts were made to have furnished material for military operations on a more extensive scale than had been done in former years. This action of Congress was very important, as that time was most opportune and favorable for securing such munitions of war as were absolutely essential to the proper equipping of an army and to the securing of articles not in demand or available in this country at that time, but which are used in modern warfare; and the purchase of smokeless powder, rapid-fire and machine guns, modern rifles, etc., was urged at that time.

Several bills were pending in Congress during the winter of 1897-98 providing for the increase of the Regular Army, which finally resulted in the act approved April 26, 1898, authorizing an increase in the enlisted strength of the Army to 62,597 men. Congress subsequently authorized the enlistment of 10,000 men "possessing immunity from diseases incident to tropical climates."

On April 9 I recommended the equipment of 50,000 volunteers, and also on April 15 recommended that an additional auxiliary force of 40,000 men be provided for the protection of the coasts and as a reserve. This, with the increase of the Regular Army and the 10,000 "immunes," would have given us an effective force of 162,597, which, with an auxiliary force of 50,000 natives, I considered sufficient, and deemed it of the first importance to well equip such force rather than to partly equip a much larger number.

The following are copies of the two letters above referred to:

HEADQUARTERS OF THE ARMY,
Washington, D. C., April 9, 1898.

SIR: Under the Constitution every able-bodied citizen between the ages of 18 and 45 is amenable to service in the militia of the United States, and liable to be called into service by the President of the United States in time of war, numbering approximately twelve millions of men capable of bearing arms.

Under the provisions of the bill now pending in Congress it is expected that authority will be granted to recruit the infantry companies to 100 men each, and I presume the same rule will be applied to the cavalry and artillery. I therefore recommend that in case of war the batteries of heavy artillery be recruited to their full strength, namely, 100 men to each battery, in order to man the guns for the defense of the coast.

I also recommend that at least 22 regiments of infantry, 5 regiments of cavalry, and the light artillery be mobilized, and placed in one large camp where they can be carefully and thoroughly inspected, fully equipped, drilled, disciplined, and instructed in brigades and divisions, and prepared for war service. This will give approximately a force of 30,000 men.

I further recommend that the President call for a volunteer force from the different States and Territories of at least 50,000 men in addition to the above force, to constitute one army for any offensive movements against the Spanish army in Cuba, estimated at 150,000 men, of which number 80,000 are reported as effective for military service. The entire force should be fully equipped with mountain, field, and siege artillery, and all the appliances and equipments required for actual war service.

In addition to this force, the State troops along the Atlantic, Gulf, and Pacific coasts will be available for any emergency that might arise or threatened attacks upon the towns, villages, or cities that are exposed, or for concentration of the large force that may be required in the future.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

The SECRETARY OF WAR.

HEADQUARTERS OF THE ARMY,
Washington, D. C., April 15, 1898.

SIR: Referring to my letter of April 9, I have the honor to submit the following: That in my judgment the available force of the Regular Army should be mobilized in the best and most available healthful position in the Department of the Gulf. I suggest Chickamanga Park, on account of its altitude and advantages for preparing a command for the serious requirements of actual warfare.

The history of the expedition to the Crimea and to Egypt indicate the necessity of complete and perfect equipment of each military organization, and the Army should be thoroughly and effectively organized in every department—infantry, artillery, cavalry, Engineer Corps, Signal Corps, construction train for building wharves, piers, etc., and repairing railway tracks and bridges, corduroying roads, etc., pontoon trains and appliances for depot and reserve trains—in order that upon landing on foreign soil every company, battery, regiment, brigade, and division shall be in perfect condition, fully supplied and equipped to render effective service. Hence the regiments of infantry, cavalry, and light batteries of artillery should be fully supplied with tentage, camp equipage, arms, ammunition, intrenching tools, and transportation, with medical supplies, and rations and food for men and animals for at least six months. The command should also be supplied with field artillery, siege guns, howitzers, and mortars for offensive work against any fieldworks or fortifications of the enemy, or for the protection of camps and depots that might be established.

The amount of ammunition per gun should be 500 rounds.

The amount of small-arms ammunition should be 1,000 rounds per man.

The regulation amount of tentage and transportation: Two wagons per company of infantry; 3 wagons per troop and battery of cavalry and artillery; 12 pack mules per company of infantry; 14 pack mules per troop and battery of cavalry and artillery.

Arms and ammunition and fatigue uniforms should be furnished for 50,000 natives, that should be organized into an auxiliary force.

For the support of the batteries manning the coast defenses along the Atlantic and Gulf coasts, and for the purpose of repelling any landing force or threatened danger to the port cities and towns, there should be at least a force of 40,000 men suitably equipped for that purpose.

The equipment of the 50,000 volunteers, in addition to the regular force, should be in my judgment on the same basis and the same allowances.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

The SECRETARY OF WAR.

At the commencement of the war the problem was largely a naval one, and until the question of superiority between our Navy and the Spanish navy, or such naval forces as might be furnished by any other European power or combination of powers supporting the Spanish Government, was determined, military operations had to be determined by the success or failure of our naval forces. I was fully convinced that should our Navy prove superior the position of the Spanish army in Cuba would be rendered untenable with a minimum loss of life and treasure to the United States. There were two most serious obstacles to be avoided—one was placing an army on the Island of Cuba before our Navy controlled the Cuban waters; and the other was putting an army on the island at a time when a large number of the men must die from the diseases that have prevailed in that country, according to all statistics, for the last one hundred years. For the latter reason I addressed a letter to the Secretary of War, under date of April 18, 1898, forwarding a communication from Surgeon-General Sternberg regarding the danger of putting an army in Cuba during the sickly season, and at the same time urged the plan of harassing the Spanish forces and doing the enemy the largest amount of injury during the time necessary for our Navy to demonstrate its superiority—the rainy or sickly season and the time actually required to equip and instruct the volunteer forces with the least possible loss to ourselves. In that letter I also asserted the belief I have entertained from the first, *that we could secure the surrender of the Spanish army in the Island of Cuba without any great sacrifice of life.*

The following is a copy of the letter referred to:

HEADQUARTERS OF THE ARMY,
Washington, D. C., April 18, 1898.

SIR: Referring to my former letters concerning healthful camps for the troops and the uncertainty of Congress requiring an army to move to Cuba at this season of the year, I would respectfully call attention to the letter of the Surgeon-General of the Army, dated Washington, March 25, of this year, as to the danger of putting an army in Cuba during what is known as the "rainy" or "sickly" season. That opinion is also confirmed by reports of Dr. James Guiteras, of Philadelphia, a well-known authority on yellow fever, and others.

In my opinion it is extremely hazardous, and I think it would be injudicious, to put an army on that island at this season of the year, as it would undoubtedly be decimated by the deadly disease, to say nothing of having to cope with some 80,000 troops, the remnant of 214,000, that have become acclimated, and that are equipped with 183 guns. And still another element of extreme danger would be to place an army there with the possibility of our own Navy not being able to keep the waters between our own territory and that island clear of hostile ships or fleets.

By mobilizing our force and putting it in healthful camps and using such force as might be necessary to harass the enemy and doing them the greatest injury with the least possible loss to ourselves, if our Navy is superior to theirs, in my judgment, we can compel the surrender of the army on the island of Cuba with very little loss of life and possibly avoid the spread of yellow fever over our own country.

There is still time, if this is favorably considered, to put a small force of regular troops, number approximately 18,000 men, in healthful camps until such time as they can be used on the Island of Cuba with safety.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

The SECRETARY OF WAR.

In order that the volunteers should be equipped as speedily and efficiently as possible soon after the first call for volunteers was made, and that their wants and necessities might be anticipated, the following letter was addressed to the honorable Secretary of War:

HEADQUARTERS OF THE ARMY,
Washington, D. C., April 26, 1898.

SIR: I regard it of the highest importance that the troops called into service by the President's proclamation be thoroughly equipped, organized, and disciplined for field service. In order that this may be done with the least delay, they ought to be in camp approximately sixty days in their States, as so many of the States have made no provision for their State militia, and not one is fully equipped for field service. After being assembled, organized, and sworn into service of the United States, they will require uniforms, tentage, complete camp equipage, arms, and ammunition, and a full supply of stationery, including blank books and reports for the quartermaster's, commissary, medical, and ordnance departments. They will also require complete equipment of ordnance, quartermaster's, commissary, and medical supplies, hospital appliances, transportation, including ambulances, stretchers, etc. The officers and noncommissioned officers will have to be appointed and properly instructed in their duties and responsibilities, and have some instruction in tactical exercises, guard duties, etc., all of which is of the highest importance to the efficiency and health of the command. This preliminary work should be done before the troops leave their States. While this is being done, the general officers and staff officers can be appointed and properly instructed, large camps of instruction can be judiciously selected, ground rented, and stores collected. At the end of sixty days the regiments, batteries, and troops can be brigaded and formed into divisions and corps, and proper commanding generals assigned, and this great force may be properly equipped, molded, and organized into an effective army with the least possible delay.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

The SECRETARY OF WAR.

Congregating tens of thousands of men, many of whom were not uniformed, and scarcely any properly equipped, in great camps away from their States, rendered it difficult for them to be properly supplied with food, cooking utensils, camp equipage, blankets, tentage, medical supplies, transportation, etc., and was to a great extent the cause, in my judgment, of the debilitating effect upon the health and strength of the men, who were otherwise in good physical condition. The material necessary to clothe and equip large armies was not even manufactured at that time, and the consequent condition of the troops for weeks and months was injurious to the commands in many ways.

There being a lack of uniformity in the amount of clothing furnished by the States and applied for by the different commands, the following general orders were issued:

GENERAL ORDERS, }

No. 54. }

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 25, 1898.

The following standard of supplies and equipment for field service is published for the information and guidance of troops in the military service of the United States. The allowance is regarded as the minimum for field service:

Headquarters of an army corps.—Three wagons for baggage, etc., or 8 pack mules; 1 two-horse wagon; 1 two-horse spring wagon; 10 extra saddle horses for contingent wants; 2 wall tents for commanding general; 1 wall tent for every two officers of his staff.

Headquarters of a division.—Two wagons for baggage, etc., or 5 pack mules; 1 two-horse spring wagon; 1 two-horse wagon; 5 extra saddle horses for contingent wants; 1 wall tent for commanding general; 1 wall tent for every two officers of his staff.

Headquarters of a brigade.—One wagon for baggage, or 5 pack mules; 1 two-horse spring wagon; 2 extra saddle horses for contingent wants; 1 wall tent for the commanding general; 1 wall tent for every two officers of his staff.

Allowance of transportation for regiment of cavalry, 49 wagons or 144 pack animals.

Allowance of transportation for battery light artillery, 4 wagons.

Allowance of transportation for regiment of infantry, 25 wagons.

Supplies to be carried in wagons per company: Ten days' field rations per man; 100 rounds of ammunition per soldier; 250 pounds of officers' baggage and supplies; tentage; grain for animals; utensils for each company mess, not to exceed 350 pounds for each troop, battery, or company; horseshoes, nails, tools, and medicines for cavalry horses, not to exceed 300 pounds; to each soldier or civilian employee (compactly rolled in one piece of shelter tent), 1 blanket, 1 poncho, and 1 extra suit of undergarments.

Whenever the amount of rations or grain varies from the above, the weight to be carried per 6-mule wagon may be increased or diminished, but should not exceed 4,000 pounds, and for 4-mule wagon 3,000 pounds, and if possible should be less per wagon.

Whenever obtainable on line of march, full forage will be allowed all animals, the rate of purchase to be regulated by the quartermaster's department.

To be carried on the person or horse: One overcoat, 1 piece of shelter tent, 50 rounds of rifle or carbine, and 24 rounds of revolver ammunition.

Supplies to be carried on pack mules for one troop of cavalry: Five days' field rations per man; 100 rounds of ammunition per soldier.

The utensils for each troop of cavalry must not exceed 350 pounds.

The weight of load per aparejo must never exceed 250 pounds, and should, if possible, be less than 200 pounds.

Troop of cavalry, company of infantry, or light battery.

	Troop of cavalry.	Company of infantry.	Light battery.
	Pounds.	Pounds.	Pounds.
Field rations, 10 days: Cavalry, 100 men; infantry, 106; artillery, 125 ..	3,640	3,858	4,560
Ammunition, 100 rounds: Cavalry, 100 men; infantry, 106 men	725	769	.....
Officers' baggage and supplies	250	250	250
Tentage (7 conical wall for cavalry and infantry, each; 9 for light battery)	854	854	1,098
Grain for animals, 10 days, 6 pounds: Cavalry, 115; infantry, 12; artillery, 126	6,900	720	7,560
Utensils for each company mess	350	350	350
Horseshoes, nails, tools, and medicines for cavalry and artillery horses ..	300	.....	325
Soldiers' baggage: Each 1 blanket, 1 poncho, 1 extra suit of undergarments, and 1 piece shelter tent	1,662	1,761	2,078
Total	14,681	8,562	16,211

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

The publication of the above order was delayed from May 16 to May 25, 1898; and the order specifying the allowance of wheel transportation, tentage, etc., for the Medical Department of the Army, including ambulances, stretchers, litter bearers, etc., was not published until June 22, 1898.

The regular infantry was ordered, April 15, 1898, to New Orleans, Mobile, and Tampa, preparatory to an immediate movement to Cuba should war be declared. This order, however, was partially suspended, and a part of the regular infantry, with the artillery and cavalry, ordered to camp at Chickamanga Park. On May 10 the regular artillery and cavalry were ordered from Chickamanga to Tampa, preparatory to a movement on Cuba. Later 70,000 men were ordered to move on Cuba, and commissary stores for ninety days for the men and thirty days' stores for the animals were ordered to be concentrated at Tampa. None of these movements on

Cuba, however, materialized. The want of proper equipment and ammunition rendered the movement impracticable.

While troops were being assembled at Tampa, Mobile, New Orleans, Chickamauga, Washington, and in the different States, an expedition to the Philippine Islands was gathered at San Francisco under the command of Maj. Gen. Wesley Merritt. The command was well organized and as well supplied as it was possible with the means available. The expedition sailed May 25, 1898, and was well conducted and eminently successful in every way. Full reports have been submitted by General Merritt and his subordinate officers.

As soon as hostilities were commenced expeditions were immediately organized to give aid and support to the Cubans in the way of supplying them with arms, munitions of war, and supplies, wherever and whenever possible.

A short time before the commencement of the war, there left Washington, from the Bureau of Military Information, two officers, Lieut. A. S. Rowan and Lieut. H. H. Whitney, to attempt the most difficult and dangerous enterprise of ascertaining existing conditions in the Islands of Cuba and Porto Rico, respectively. Their efforts were eminently successful. Both of these officers penetrated the enemy's country and obtained most accurate and valuable information regarding the position of the military and naval forces, the defenses, and the topographical and climatic features of the country, all of which was of great value in subsequent military operations. Lieutenant Rowan left the United States on April 9 and landed April 24 at El Portillo, about 70 miles west of Santiago de Cuba. He went into the interior, met General Garcia, of the Cuban army, and remained with him for a short time, then, together with Brig. Gen. Enrique Collazo and Lieut. Col. Carlos Hernandez, of General Garcia's staff, passed up to Manati on the north coast, and on May 4 went in an open boat to Nassau, New Providence, returning to the United States May 13, 1898.

Lieutenant Whitney left Key West May 5 for Porto Rico, where he arrived the 15th, and after exploring, under disguise, the southern portion of the island, left on June 1, returning to the United States June 9.

The first expedition with arms and supplies for the Cubans was started from Key West under the direction of Col. R. H. Hall, Fourth Infantry (now brigadier-general, United States Volunteers). It landed on the coast, under charge of Capt. J. J. O'Connell, First United States Infantry, Lieut. W. M. Crofton, First Infantry, being the first officer to land on Cuban soil after the commencement of hostilities.

Several expeditions were subsequently made by Col. J. H. Dorst, Lieut. C. P. Johnson, Tenth Cavalry, and others.

Also, a strong expedition was organized, consisting of 5,000 men, under the command of the senior officer then at Tampa, Maj. Gen. W. R. Shafter, the objective point being Tunas, on the south side of Cuba, where it was expected to open communication with the forces under General Gomez and support and cooperate with him in that mountain region (which is a healthful part of Cuba), and also to furnish all the supplies needed by that force. This expedition, when fully prepared, was delayed on account of the movement of Admiral Cervera's fleet from Cape Verde Islands to the waters of the West Indies, and the movement of our troops was suspended awaiting the result of the expected conflict between that fleet and our own.

An important expedition, under Lieut. Col. Dorst, U. S. V., sailed from Key West to the north of Nassau, New Providence; thence directly south, landing at the harbor of Banes, on the north coast of Cuba, which has been held during the war by the Cubans, where he remained five days, landing a steamer load of the munitions of war most needed, including 7,500 rifles, 1,000,000 cartridges, 5,000 uniforms, and other material needed by the 10,000 Cubans under General Garcia.

The following general order was issued on Memorial Day :

GENERAL ORDERS, }

No. 57.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, May 30, 1898.

After a prolonged period of peace our Army is once more called upon to engage in war in the cause of justice and humanity. To bring the military forces to the highest state of efficiency and most speedily accomplish what is expected should be the earnest effort and call forth the best energies of all its members of whatsoever station.

The laws and regulations which govern military bodies in civilized countries have been developed to their present perfection through the experience of hundreds of years, and the faithful observance of those laws and regulations is essential to the honor and efficiency of the Army.

All authority should be exercised with firmness, equity, and decorum on the part of superiors, and should be respected by implicit obedience and loyal support from subordinates.

Every officer of whatever grade will, so far as may be in his power, guard and preserve the health and welfare of those under his charge. He must labor diligently and zealously to perfect himself and his subordinates in military drill, instruction, and discipline; and, above all, he must constantly endeavor, by precept and example, to maintain the highest character, to foster and stimulate that true soldierly spirit and patriotic devotion to duty which must characterize an effective army. The Major-General Commanding confidently trusts that every officer and soldier in the service of the Republic, each in his proper sphere, will contribute his most zealous efforts to the end that the honor and character of the Army may be preserved untarnished and its best efforts crowned with success.

This order is given upon a day sacred to the memory of the heroic dead, whose services and sacrifices afford us example and inspiration, and it is expected that all will be fully impressed with the sacred duty imposed upon the Army by the Government of our beloved country.

By command of Major-General Miles :

H. C. CORBIN, *Adjutant-General.*

Definite information having been received that Cervera's fleet had been inclosed in the harbor of Santiago de Cuba by the navy, orders were given to General Shafter, May 30, 1898, to place his troops on transports and go to the assistance of the navy in capturing that fleet and harbor. It was expected that the transports engaged at that time would convey some 25,000 men.

I desired to go with this command, and sent the following telegram to the honorable Secretary of War :

[Telegram.]

HEADQUARTERS OF THE ARMY,
Tampa, Fla., June 5, 1898.

The SECRETARY OF WAR, *Washington, D. C.:*

This expedition has been delayed through no fault of anyone connected with it. It contains the principal part of the Army, which, for intelligence and efficiency, is not excelled by any body of troops on earth. It contains 14 of the best conditioned regiments of volunteers, the last of which arrived this morning. Yet these have never been under fire. Between 30 and 40 per cent are undrilled, and in one regiment over 300 men had never fired a gun. I request ample protection while at sea at all times for this command from the Navy. This enterprise is so important that I desire to go with this army corps, or to immediately organize another and go with it to join this and capture position No. 2. Now that the military is about to be used, I believe that it should be continued with every energy, making the most judicious disposition of it to accomplish the desired result.

MILES,
Major-General Commanding Army.

June 6, the following telegram was received :

WASHINGTON, D. C., June 6, 1898—2.35 p. m.

Major-General MILES, *Tampa, Fla.:*

The President wants to know the earliest moment you can have an expeditionary force ready to go to Porto Rico large enough to take and hold island without the force under General Shafter.

R. A. ALGER, *Secretary of War ;*

and reply sent that such an expedition could be ready in ten days

It was found that many of the steamers were not suitable for transport service, they having been built entirely for freight steamers and not equipped for properly conveying troops and munitions of war. The accumulation of the large amount of supplies and war material for the 70,000 men above mentioned at Tampa had crowded that place, and, owing to the absence of depots and facilities for handling that amount of material, occasioned great delay in properly equipping the expedition intended for Santiago. It was, however, supplied, and orders (hereto attached) given for the proper embarkation of the troops, which were ready to sail June 8, 1898. The movement was, however, suspended, owing to the report received that Spanish war vessels had been seen in the Nicholas Channel. The expedition, consisting of 803 officers and 14,935 men, finally sailed on June 14, leaving some 10,000 troops that were expected to move with this expedition, but which could not do so, owing to insufficient transportation.

IN THE FIELD, TAMPA, FLA., June 11, 1898.

SIR: Please ascertain whether the following has been attended to in connection with your fleet of transports:

Have commanding officers required their transport officers to make a list of the contents of each ship, where stored, the bulk of such stores, and an estimate of how many wagonloads there are in each vessel? Do the commanding officers of organizations know exactly where their supplies are? Have arrangements been made in order that if so many rations of any kind, ammunition, hospital supplies, etc., should be required, that they would know at once where they can be found? Have transports been supplied with stern anchors to hold them in place and afford a lee for the landing of troops in case of necessity when sea is somewhat rough? What kind of small boats are supplied to each ship for the landing of the troops of that ship? Has a list been made of them and the total number of men they can safely land at one time? Have stores been put upon transports with a view that each organization's should be complete?

The great importance of these details can not be overestimated. In landing, stores intended for one command are liable to be sent to another, and the necessity of having stores that may be needed accessible at once is manifest.

I would suggest that thorough attention be required to every detail in order to insure perfect order in the disembarking of your command.

Respectfully, yours,

MILES,
Major-General Commanding.

Gen. WILLIAM R. SHAFTER,
Port Tampa, Fla.

The following dispatch was received June 15:

WASHINGTON, D. C., June 15, 1898.

Major-General MILES, Tampa, Fla.:

Important business requires your presence here; report at once. Answer.

R. A. ALGER, Secretary of War.

On June 24, 1898, I submitted a plan of campaign, as follows:

HEADQUARTERS OF THE ARMY,
Washington, D. C., June 24, 1898.

SIR: I have the honor to submit the following:

With the capture of Santiago de Cuba it is expected we will have several thousand Spanish prisoners; and with the capture of the second objective position (Porto Rico), now under consideration, it is expected we will add to the number, making, it is hoped, in the aggregate at least 30,000 prisoners.

After the capture of the position next after Santiago de Cuba, it would be, in my judgment, advisable to take some deep-water harbors on the northern coast of Cuba, which would be available, not only for our Army, but also for the Navy, as safe ports for our transports, supply ships, and naval vessels between Key West and Porto Rico. It is also important that we should select some point at which to disembark our mounted troops and light artillery, with which our Government is well supplied. We will have in a few weeks upward of 15,000 cavalry. This force, with the light artillery and a small body of infantry, will make a most formidable army corps with which to conduct a campaign in the interior of Cuba.

The most available point, it appears to me, would be the harbor of Neuvas, which has 28½ feet of water. From there the command could move to Porto Principe, one

of the principal cities in the Island of Cuba. Using that as a base, it could move through the rolling country, which is reported to be free from yellow fever, to Poron and Taguayabon, and thence to Villa Clara; or, by a more southerly route, from Porto Principe to Ciego de Avilla; thence to Spiritus, and thence to Villa Clara. A road could be built at the rate of 5 miles per day as that army corps marches; also we would find two railroad bases between Porto Principe and Villa Clara.

To move mounted troops over from Florida to Cuba and make this march would undoubtedly consume the time up to nearly the 30th of September.

This army corps would also have the assistance of all the available forces of Garcia and Gomez, and would by that time be occupying practically two-thirds of the Island of Cuba.

If no serious force was encountered, this army corps would continue its march to the south side of Havana. If a large force of Spanish troops, sufficient to check its march, was moved to the vicinity of Villa Clara, then the entire army with which we purpose to invade Cuba could be moved between the forces at Villa Clara and Havana, dividing the Spanish forces and defeating them in detail.

I make this suggestion as having three advantages: First, we could employ at reasonable compensation such prisoners as desired occupation in road building; second, we could move into the interior of Cuba our large cavalry command without serious molestation; third, we would be operating during the rainy or sickly season in the most healthful parts of Cuba, practically free from yellow fever, and at the same time be occupying a large portion of the enemy's territory.

If this proposition does not meet with favor, then, after the capture of Santiago de Cuba and other places to the east, we could move the entire force to the west of Havana and conduct the campaign from the deep harbors on that coast. My judgment, however, is decidedly in favor of the first plan of campaign.

Before reaching Villa Clara we would undoubtedly have upward of 50,000 prisoners, and if we could, by judicious, humane treatment, use them in a way that would be advantageous to themselves as well as to our interests, I think it would be advisable. There would be one great danger in moving them to our own territory and establishing a large camp of prisoners, and that is, that they would bring the germs of disease with them and spread them among our own people, as many Americans would have to be employed on the ships and railroads, together with the guards necessary to control them.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

The SECRETARY OF WAR.

The main features of the above plan of campaign were submitted in my letters of May 26 and 27.

The following order was received to organize an expedition for operation against the enemy in Cuba and Porto Rico:

WASHINGTON, D. C., June 26, 1898.

SIR: By direction of the President an expedition will be organized with the least possible delay, under the immediate command of Major-General Brooke, United States Army, consisting of three divisions taken from the troops best equipped in the First and Third Army Corps and two divisions from the Fourth Army Corps, for movement and operation against the enemy in Cuba and Porto Rico. The command under Major-General Shafter, or such part thereof as can be spared from the work now in hand, will join the foregoing expedition, and you will command the forces thus united in person.

Transporta for this service will be assembled at Tampa with the least possible delay. The naval forces will furnish convoy, and cooperate with you in accomplishing the object in view. You will place yourself in close touch with the senior officer of the navy in those waters, with the view to harmonious and forceful action.

Estimates will be made by you immediately in the several staff departments for the necessary supplies and subsistence, such estimates to be submitted to the Secretary of War.

For the information of the President, copies of all orders and instructions given by you from time to time will be forwarded on the day of their issue to the Adjutant-General of the Army. Also daily reports of the state and condition of your command will be made to the Secretary of War direct.

It is important that immediate preparation be made for this movement, and, when ready, report to this Department for further instructions.

Very respectfully,

R. A. ALGER,
Secretary of War.

Maj. Gen. NELSON A. MILES,
United States Army, Washington, D. C.

While these movements were in progress the capture of Porto Rico had already been determined upon and transports were being gathered for an expedition for that purpose. It was my opinion that during the interim before such an expedition could be equipped and organized, it would be advisable to utilize a small portion of the troops then available at Tampa to take the Isle of Pines, off the south coast of Cuba. It was then occupied by a very small force of Spanish troops, and was being used as a base for smuggling supplies to the Island of Cuba. It was advisable, in my opinion, to take the Isle of Pines, as it was a healthful sanitarium, entirely free from yellow fever, swept by the ocean breezes, had a high altitude, and, there being large public buildings on the island, it would have been most suitable for large hospitals and camps of prisoners. I also deemed it advisable to take the deep-water harbor of Nipe, on the north coast of eastern Cuba, in order to make it available for our naval ships and transports in case of hurricanes, which were liable to occur at that season of the year, and also for use as a coaling station.

The yellow fever at this time had broken out in Mississippi, and it was feared it might spread over the Southern States. The safety of the military camps was then a matter of great importance, and after consulting with the best authorities I advised that the troops at Mobile be sent to Mount Vernon, Ala., which has been a refuge for the garrisons on the Gulf for many years; also to Miami, on the east coast of Florida, another place of refuge, and also to Fernandina, Fla., in order to isolate the troops as much as possible from railroad centers, where they would be likely to become infected by the traveling public. I also recommended that a portion of the troops at Chickamauga be sent to Fernandina and also to Porto Rico, and at the same time suggested that troops be stationed in the Loudoun and Shenandoah valleys, in the vicinity of Antietam, and on Long Island Sound. These recommendations were made in order to avoid overcrowding the larger camps at Chickamauga and Camp Alger.

During this time Lieutenant Rowan had returned from his journey to Cuba, bringing with him to Washington Brigadier-General Collazo and Lieutenant-Colonel Hernandez, of General Garcia's staff. He also brought very important information concerning the active operations of the Cubans against the Spanish troops, and the location and strength of the Spanish forces in the eastern part of Cuba, numbering at that time some 31,000 men. The two Cuban officers mentioned accompanied me to Tampa, and Colonel Hernandez, having received permission from the Navy Department to be conveyed by a United States vessel to the harbor of Banes, carried the following letter from me to General Garcia:

HEADQUARTERS OF THE ARMY,
In the Field, Tampa, Fla., June 2, 1898.

DEAR GENERAL: I am very glad to have received your officers, General Enrique Collazo and Lieut. Col. Carlos Hernandez, the latter of whom returns to-night with our best wishes for your success.

It would be a very great assistance if you could have as large a force as possible in the vicinity of the harbor of Santiago de Cuba, and communicate any information, by signals, which Colonel Hernandez will explain to you, either to our navy or to our army on its arrival, which we hope will be before many days.

It would also assist us very much if you could drive in and harass any Spanish troops near or in Santiago de Cuba, threatening or attacking them at all points, and preventing, by every means, any possible reinforcement coming to that garrison. While this is being done, and before the arrival of our army, if you can seize and hold any commanding position to the east or west of Santiago de Cuba, or both, that would be advantageous for the use of our artillery, it will be exceedingly gratifying to us.

With great respect and best wishes, I remain, very respectfully,

NELSON A. MILES,
Major-General, Commanding United States Army.
Lieutenant-General GARCIA, *Cuban Army.*

This letter was sent in anticipation of the movement of the command under General Shafter, which sailed twelve days later. Colonel Hernandez left Key West with

it June 4; General Garcia received it June 6, and I received his reply by cable June 9, of which the following is a copy:

MOLE ST. NICHOLAS (via Washington) June 9, 1898.

General MILES,
Commanding United States Army:

Garcia's reply on June 6 to your letter of June 2:

"Will take measures at once to carry out your recommendation, but concentration of force will require some time. Roads bad and Cubans scattered. Will march without delay. Santiago de Cuba well fortified with advanced intrenchments, but believe good artillery position can be taken. Spanish force approximate 12,000 between Santiago de Cuba and Guantanamo, 3,000 militia. Will maintain a Cuban force near Holguin to prevent sending reinforcements to Santiago."

The above given to me by Admiral Sampson to forward to you.

ALLEN.

Also, the following is an extract from a cablegram from Admiral Sampson to the Secretary of the Navy, which was repeated to me at Tampa, June 12, for my information:

MOLE ST. NICHOLAS, HAITI.

General Miles's letter received through Colonel Hernandez on June 6. Garcia regards his wishes and suggestions as orders, and immediately will take measures to concentrate forces at the points indicated, but he is unable to do so as early as desired on account of his expedition to Banes Port, Cuba, but he will march without delay. All of his subordinates are ordered to assist to disembark the United States troops and to place themselves under orders. Santiago de Cuba well fortified, with advanced intrenchments, but he believes position for artillery can be taken as Miles desires. (Approximate) twelve thousand (12,000) regulars and three thousand (3,000) militia between Santiago and Guantanamo. He has sent force in order to prevent aid going to Santiago from Holguin. Repeats every assurance of good will, and desires to second plans.

SAMPSON.

It will be observed that General Garcia regarded my requests as his orders, and promptly took steps to execute the plan of operations. He sent 3,000 men to check any movement of the 12,000 Spaniards stationed at Holguin. A portion of this latter force started to the relief of the garrison at Santiago, but was successfully checked and turned back by the Cuban forces under General Ferial. General Garcia also sent 2,000 men, under Perez, to oppose the 6,000 Spaniards at Guantanamo, and they were successful in their object. He also sent 1,000 men, under General Rios, against the 6,000 men at Manzanillo. Of this garrison, 3,500 started to reinforce the garrison at Santiago, and were engaged in no less than thirty combats with the Cubans on their way before reaching Santiago, and would have been stopped had General Garcia's request of June 27 been granted. With an additional force of 5,000 men General Garcia besieged the garrison of Santiago, taking up a strong position on the west side and in close proximity to the harbor, and he afterwards received General Shafter and Admiral Sampson at his camp near that place. He had troops in the rear, as well as on both sides, of the garrison at Santiago before the arrival of our troops.

The expedition against Santiago, commanded by Major-General Shafter, landed at Daiquiri and Siboney June 22, 23, and 24. The subsequent movements of the expedition against the garrison of Santiago have been described in the several communications and reports of commanding officers there engaged.

On July 2 the following dispatch was received:

PLAYA DEL ESTE, July 1, 1898.

ADJUTANT-GENERAL'S OFFICE, UNITED STATES ARMY,
Washington, D. C.:

Siboney. Had a very heavy engagement to-day, which lasted from 8 a. m. till sundown. We have carried their outer works and are now in possession of them. There is now about three-quarters of a mile of open country between my lines and city. By morning troops will be intrenched and considerable augmentation of force will be there. General Lawton's division and General Bates's brigade which have

been engaged all day in carrying El Caney, which was accomplished at 4 p. m., will be in line and in front of Santiago during the night. I regret to say that our casualties will be above 400. Of these not many are killed.

W. R. SHAFTER, *Major-General.*

And on the next day the following dispatch was received:

PLAYA DEL ESTE, *July 3, 1898.* (Camp near Sevilla, Cuba, 3.)

The SECRETARY OF WAR, *Washington:*

We have the town well invested on the north and east, but with a very thin line. Upon approaching it we find it of such a character and the defenses so strong it will be impossible to carry it by storm with my present force, and I am seriously considering withdrawing about 5 miles and taking up a new position on the high ground between the San Juan River and Siboney, with our left at Sardinero, so as to get our supplies to a large extent by means of the railroad, which we can use, having engines and cars at Siboney. Our losses up to date will aggregate a thousand, but list has not yet been made; but little sickness outside of exhaustion from intense heat and exertion of the battle of the day before yesterday and the almost constant fire which is kept up on the trenches. Wagon road to the rear is kept up with some difficulty on account of rains, but I will be able to use it for the present. General Wheeler is seriously ill, and will probably have to go to the rear to-day. General Young also very ill, confined to his bed. General Hawkins slightly wounded in foot. During sortie enemy made last night, which was handsomely repulsed, the behavior of the regular troops was magnificent. I am urging Admiral Sampson to attempt to force the entrance of the harbor, and will have a consultation with him this morning. He is coming to the front to see me. I have been unable to be out during the heat of the day for four days, but am retaining the command. General Garcia reported he holds the railroad from Santiago to San Luis, and has burned a bridge and removed some rails; also that General Pando has arrived at Palma, and that the French consul with about four hundred French citizens came into his lines yesterday from Santiago. Have directed him to treat them with every courtesy possible.

SHAFTER, *Major-General.*

11.44 A. M.

To which I cabled the following answer:

HEADQUARTERS OF THE ARMY,
Washington, D. C., July 3, 1898.

General SHAFTER, *Playa del Este, Cuba:*

Accept my hearty congratulations on the record made of magnificent fortitude, gallantry, and sacrifice displayed in the desperate fighting of the troops before Santiago. I realize the hardships, difficulties, and sufferings, and am proud that amid those terrible scenes the troops illustrated such fearless and patriotic devotion to the welfare of our common country and flag. Whatever the results to follow their unsurpassed deeds of valor, the past is already a gratifying chapter of history. I expect to be with you within one week with strong reinforcements.

MILES,
Major-General, Commanding.

HEADQUARTERS FIFTH ARMY CORPS,
Near Santiago, Playa, July 4, 1898.

Maj. Gen. NELSON A. MILES,

Commanding the Army of the United States, Washington:

I thank you in the name of the gallant men I have the honor to command for splendid tribute of praise which you have accorded them. They bore themselves as American soldiers always have. Your telegram will be published at the head of the regiments in the morning. I feel that I am master of the situation and can hold the enemy for any length of time. I am delighted to know that you are coming, that you may see for yourself the obstacles which this army had to overcome. My only regret is the great number of gallant souls who have given their lives for our country's cause.

SHAFTER.

The following dispatch was also received from General Shafter:

HEADQUARTERS FIFTH ARMY CORPS,
CAMP NEAR SAN JUAN RIVER,
Via Haiti, Playa del Este, July 4, 1898.

ADJUTANT-GENERAL, *Washington:*

If Sampson will force an entrance with all his fleet to the upper bay of Santiago, we can take the place within a few hours. Under these conditions I believe the town will surrender. If the Army is to take the place, I want 15,000 troops speedily, and it is not certain that they can be landed, as it is getting stormy. Sure and speedy way is through the bay. Am now in position to do my part.

SHAFTER, *Major-General.*

On receipt of these communications it was decided that I should go immediately to Santiago with the reinforcements already en route and that were being moved as rapidly as possible. Before leaving Washington it was my purpose to land sufficient forces on the west side of the harbor of Santiago to either open the entrance to our fleet or enfilade the enemy's line and take their position in reverse. I left Washington on the evening of July 7, arrived at Columbia at 5 p. m. on the 8th; thence took a special train to Charleston, reaching there in time to go on board the fast steamer *Yale*, already loaded with 1,500 troops, and, with the steamer *Columbia* accompanying, arrived opposite the entrance of Santiago Harbor on the morning of July 11. The fleet under command of Admiral Sampson was then bombarding the Spanish position. Before reaching Santiago I prepared the following note to Admiral Sampson and forwarded it to him by Captain Wise, commander of the *Yale*, immediately upon our arrival. Admiral Sampson was then on board the flagship *New York*, in close proximity to the entrance of Santiago Harbor, and in full view of Morro Castle.

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. *YALE*,
Off Siboney, Cuba, July 11, 1898.

ADMIRAL SAMPSON,

Commanding United States Fleet.

SIR: I desire to land troops from the *Yale*, *Columbia*, and *Duchesse* to the west of the bay of Santiago Harbor, and follow it up with additional troops, moving east against the Spanish troops defending Santiago on the west. I will be glad if you can designate the most available point for disembarking the troops, and render all the assistance practicable to the troops as they move east.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

Admiral Sampson immediately came on board the *Yale*. I explained to him the purpose of my presence and told him that I desired the cooperation of the Navy in the plan above stated. He cordially acquiesced in the plan, and offered every assistance of his fleet to cover the debarkation of the troops and also to enfilade the Spanish position with the guns of the ships. When this arrangement had been concluded, I went on shore and opened communication with General Shafter. I asked him if he had sufficient troops on the east side of the harbor of Santiago to maintain his position, and he replied that he had. I then gave directions for General Garretson to disembark all the troops on the *Yale*, *Columbia*, and other transports that were there or expected to arrive, viz, the *Duchesse* and *Rita*, whenever he should receive orders.

On the following morning I rode from Siboney to the headquarters of General Shafter. After consulting with him, he sent a communication to General Toral, saying that the Commanding General of the American Army had arrived in his camp with reinforcements, and that we desired to meet him between the lines at any time agreeable to him. He replied that he would see us at 12 o'clock the following day. That evening I became apprised of the fact that negotiations regarding a surrender had been pending between the commanding general and the Spanish commander, but no definite conclusions had been reached. Before leaving Washington I was aware of the fact that yellow fever had developed among our troops and by this time learned that it had spread so much that there were over a hundred cases, and the medical officers were undecided as to the extent it might cripple the command. This was the most serious feature of the situation, and impressed me with the importance of the fact that prompt action should be taken, and I so informed the authorities by cable, suggesting that it was a case where discretionary authority should be granted.

At the appointed time, accompanied by Brig. Gen. J. C. Gilmore and Lieut. Col. Marion P. Maus, of my staff, Major-General Shafter, two of his staff officers, and Major-General Wheeler, and Lieutenant Wheeler, aid-de-camp, I met the Spanish general, Toral, with two of his staff officers and an interpreter. After some conversation between General Toral and General Shafter, I informed General Toral dis-

tinctly that I had left Washington six days before; that it was then the determination of the Government that this portion of the Spanish forces must either be destroyed or captured; that I was there with sufficient reinforcements to accomplish that object, and that if this was not the case any number of troops would be brought there as fast as steamers could bring them, if it took 50,000 men. I told him that we offered him liberal terms, namely, to return his troops to Spain; and I also pointed out the fact that this was the only way in which his forces could return, they being on an island 3,000 miles away from their own country with no means of succor. He said that under the Spanish law he was not permitted to surrender as long as he had ammunition and food, and that he must maintain the honor of the Spanish arms. My reply was that he had already accomplished that; that he must now surrender or take the consequences, and that I would give him until daylight the next morning to decide. He appealed for longer time, saying it was impossible for him to communicate with his superiors, and upon his request I granted him until 12 o'clock noon.

After thoroughly examining the entire position and riding along the trenches from right to left, I returned to General Shafter's headquarters. Before reaching that point I received the following cablegram from Washington in reply to mine of the evening before:

WASHINGTON, D. C., July 13, 1898. (Received 2.45 p. m.)

Major-General MILES:

You may accept surrender by granting parole to officers and men, the officers retaining their side arms. The officers and men after parole to return to Spain, the United States assisting. If not accepted, then assault, unless in your judgment an assault would fail. Consult with Sampson and pursue such course as to the assault as you jointly agree upon. Matter should be settled promptly.

R. A. ALGER,
Secretary of War.

This left the matter entirely to my discretion—to accept surrender, order an assault, or withhold the same. I sent the following telegram to Admiral Sampson, again requesting him to be ready to cover the landing of the troops, in accordance with our previous arrangement, and fixing the time at 12 o'clock the following day:

HEADQUARTERS FIFTH ARMY CORPS,
Camp near Santiago de Cuba, July 13, 1898.

Admiral W. T. SAMPSON,
Commanding United States Naval Forces, North Atlantic Squadron.

SIR: Please have General Henry's command, now on *Yale, Columbia, and Duchess*, ready to disembark at noon to-morrow at Cabanas. Telegraph notification will be sent you at flag station, also at Siboney, when to commence the debarkation.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding United States Army.

I also sent the following telegrams to General Henry, whom I had placed in command of all the infantry and artillery then on board transports:

HEADQUARTERS OF THE ARMY,
Camp near Santiago, July 13, 1898.

General HENRY, *Commanding Division:*

Have asked Admiral Sampson to be prepared to cover your debarkation at Cabanas to-morrow after 12 noon in case Spaniards do not surrender. Notification will be sent him by telegraph and signal when your troops should go ashore. Make the best use of your troops against the Spanish troops. Avoid surprise or exposing your troops to artillery fire.

MILES, *Commanding.*

HEADQUARTERS OF THE ARMY,
Camp near Santiago, July 13, 1898.

General HENRY, *Siboney, Cuba:*

Major-General commanding directs me to inform you that all movements against the enemy are suspended until 12 noon to-morrow.

J. C. GILMORE, *Brigadier-General.*

On the morning of July 14 Admiral Sampson's fleet was in position to cover the landing of the troops from the transports, which were in the rear and in close proximity to the small harbor of Cabanas, about 2½ miles west from the entrance of the harbor of Santiago. The ground between the harbor of Cabanas and the right flank of General Shafter's command on the north side of the Bay of Santiago, a distance of between 6 and 7 miles, had been occupied by a small force of Cuban troops, and it was my purpose to occupy this ground with a strong body of infantry, and with some 24 pieces of artillery, where the latter could easily reach Morro Castle, as well as enfilade the Spanish lines in front of General Lawton's division. The Spanish commander was well aware of our designs, as the position and movements of the fleet had been in full view of the officers commanding his troops, and they had reported to him having seen 57 vessels, some of them loaded with troops, menacing that part of his position.

Before the time, 12 o'clock on July 14, the following letter was received from General Toral:

SANTIAGO DE CUBA, *July 14, 1898.*

HONORED SIR: His excellency the general in chief of the army of the Island of Cuba telegraphs from Havana yesterday at 7 p. m. the following: "Believing the business of such importance as the capitulation of that place should be known and decided upon by the Government of His Majesty, I give you notice that I have sent the conditions of your telegram, asking an immediate answer and enabling you also to show this to the General of the American army, to see if he will agree to await the answer of the Government, which can not be as soon as the time which he has decided, as communication by way of Bermuda is more slow than by Key West. In the meanwhile your honor and the General of the American army may agree upon capitulation on the basis of repatriation [returning to Spain]." I have the honor to transmit this to you, in case you may [consider] the foregoing satisfactory, that we may designate persons in representation of himself, who, with those in my name, agree to clauses of the capitulation upon the basis of the return to Spain, accepted already in the beginning by the general in chief of this army.

Awaiting a reply, I am, very respectfully, your servant,

JOSE TORAL, etc.

GENERAL IN CHIEF OF THE AMERICAN FORCES.

On meeting General Toral by appointment at 12 o'clock that day under a flag of truce, at the same place as before, he stated that he was prepared to surrender his command, and that such action was approved by Captain-General Blanco, who had authorized him to appoint commissioners to agree upon the clauses of capitulation, which he was prepared to do, but that before final action it was proper that the Government at Madrid should know and approve what was done. He said, however, that he was sure that the Government would not fail to indorse his action. His manner was so sincere and the language of General Blanco so positive that I felt no hesitancy in accepting it in good faith, and stated that we would accept the surrender under the condition that the Spanish troops should be repatriated by the United States. General Toral stated that he would surrender all the troops in the department of Santiago de Cuba, many of them from 70 to 100 miles distant and against whom not a shot had been fired; yet the activity of the Cuban troops and their dispositions had been such as to render the Spanish positions exceedingly perilous. This desirable result I regarded as an accomplished fact, and sent the following telegram:

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898—12.55 p. m.

The SECRETARY OF WAR, Washington, D. C.:

General Toral formally surrendered the troops of his army corps and division of Santiago on the terms and understanding that his troops would be returned to Spain. General Shafter will appoint commissioners to draw up the conditions of arrangement for carrying out the terms of surrender. This is very gratifying, and General Shafter and the officers and men of this command are entitled to great credit for their tenacity, fortitude, and in overcoming almost insuperable obstacles which they have encountered. A portion of the army has been infected with yellow

fever, and efforts will be made to separate those who are infected and those free from it, and to keep those which are still on board ship separated from those on shore. Arrangements will be immediately made for carrying out the further instructions of the President and yourself.

MILES,
Major-General Commanding the Army.

and informed General Shafter that he could appoint the commissioners.

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898.

SIR: You are authorized to appoint commissioners to draw up articles of capitulation on the terms upon which the Spanish division has surrendered, namely, the return of the Spanish troops to Spain at the expense of the United States. The Spanish troops will be supplied at the expense of the United States, and assembled at such place as may be available for their embarkation on the arrival of the necessary transportation.

The attention of the commissioners should be called to the importance of the return of the people that have fled from the city of Santiago and supplying them with food.

The sending of supplies into the harbor on the Red Cross ship and other vessels.

The removal of all obstructions to the entrance of the harbor, or notification to the fleet that no obstacle will be placed in the way of their removing such obstructions.

Respectfully,

NELSON A. MILES,
Major-General, Commanding the Army.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding United States Forces.

After learning the real condition of our troops and their urgent necessities, I gave the following instructions:

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898.

SIR: The Spanish army having surrendered, the terms of capitulation will be carried into effect with as little delay as practicable, on the understanding that these troops will be returned to Spain at the expense of the United States. You will, with as little delay as practicable, place such troops as are not infected with yellow fever in separate camps and, as soon as practicable, report the number that will be available for service with another expedition. Those organizations which have been infected with yellow fever every effort will be made to improve their sanitary condition and to check the spread of the disease by placing them in as healthy camps as possible.

Respectfully,

NELSON A. MILES,
Major-General, Commanding the Army.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding United States Forces

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898.

SIR: For a double reason I think it would be advisable to isolate the troops that have just joined your command in separate camps on healthful ground, so as to keep them, if possible, free from infection by yellow fever. It will also form a strong force to meet any force that might by any possibility come from Holguin. Make your disposition accordingly.

Respectfully,

NELSON A. MILES,
Major-General, Commanding the Army.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding United States Forces.

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898.

SIR: The cavalry division are separated from their horses and have been doing most extraordinary service. If it is possible, I desire to have them separated from

the rest of the command, and in time they can be put on board ship and sent to other fields, as I desire to have them remounted as soon as possible.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding United States Army.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding Fifth Army Corps.

The following telegram was received:

WASHINGTON, D. C., July 14, 1898.

Major-General MILES:

The conditions are such, on account of yellow fever, I have ordered all further shipments of troops to Santiago cease. We are now arranging transportation of 25,000 men for Porto Rico. As soon as matters are settled at Santiago I think you had better return and go direct with the expedition. Yellow fever breaking out in camp at Santiago will, I fear, deprive you of the use of our forces there; however, can be determined later. As soon as Santiago falls, the troops must all be put in camp as comfortable as they can be made, and remain, I suppose, until the fever has had its run. It is the most difficult problem to solve, but we are sure you and General Shafter, with the aid of the surgeons in charge, will do all that can be done. Have ordered two immune regiments to Santiago. They will be colored regiments; seems to me will answer to garrison the places as long as our forces have to remain there.

R. A. ALGER,
Secretary of War.

and answered as follows:

HEADQUARTERS CAVALRY DIVISION, UNITED STATES ARMY,
Before Santiago, Cuba, July 14, 1898—1.40 p. m.

Hon. SECRETARY OF WAR,
Washington, D. C.:

Your second dispatch received. Have already anticipated in part by giving directions for separating the troops that have been infected, and kept the troops that came on the *Yale*, *Columbia*, *Duchesse*, and part of those on the *Comanche* ready to disembark at Cabanas, on the west side, where I had made all arrangements for putting the troops in on that side of the harbor and opening the entrance to the bay in conjunction with Admiral Sampson. I will now keep these troops away from the infected districts and will probably let them go ashore at Guantanamo. Other vessels en route will go into the harbor at Guantanamo. Presume that will be a good rendezvous, at least for the troops coming from Tampa. They could come in on the south side and go into a safe harbor there. Will consult with the Admiral with regard to rendezvousing our troops at Porto Rico or one of the islands immediately adjacent thereto. Will keep you fully apprised of any important information.

MILES,
Major-General, Commanding the Army.

The following telegrams were also sent:

GENERAL WHEELER'S CAMP, July 14, 1898.

General HENRY, Siboney, Cuba:
The enemy have surrendered.

GILMORE, *Brigadier-General.*

GENERAL WHEELER'S CAMP, July 14, 1898.

Admiral SAMPSON,
The New York, Siboney, Cuba:

The enemy have surrendered. I will be down to see you soon.

MILES, *Major-General.*

I left without delay, returning to General Shafter's headquarters, and thence to Siboney. While en route I became fully apprised of the condition of the troops at the fever hospitals, and recognized the great need of immediate action to relieve the threatened danger of the whole command. I had already given directions on the 11th of July for destruction of the infected habitations at Siboney and other places, and now ordered the Twenty-fourth Regiment of United States Infantry to the yellow-fever hospital to police the grounds and nurse the sick. I moved all of the troops then on board transports to Guantanamo.

There was some delay in the final capitulation, owing to the nonagreement at first between the two commissions as to the disposition of the small arms, but it was finally settled by leaving it to the decision of our Government, upon the recommendation of our commissioners that they should be sent to Spain with the troops.

My chief desire, after being sure of the surrender of the garrison at Santiago, was to relieve our troops as speedily as possible by getting them away from the trenches and malarial grounds upon which they were encamped. Dispatches were received and sent as follows:

HEADQUARTERS FIFTH ARMY CORPS, *July 16, 1898.*

General MILES:
They surrender.

SHAFTER.

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. YALE,
Off Siboney, Cuba, July 16, 1898.

General SHAFTER,
Commanding Fifth Army Corps:

Congratulate you and the Army again. The troops should change camps almost daily, occupying fresh ground until free from the fever. I should think ground parallel to the railroad, where men could bathe in salt water, would be good ground. All blockhouses or places occupied by the Spanish troops should be burned.

MILES,
Major-General, Commanding.

The following indorsement upon the report of board composed of Colonel Greenleaf, chief surgeon of the Army, Maj. Louis A. La Garde, surgeon, and Drs. Guiteras and Parker, was transmitted to Major-General Shafter, with the following indorsement:

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. YALE,
Off Siboney, Cuba, July 17, 1898.

Respectfully referred to Major-General Shafter, commanding Fifth Army Corps.

This sanitary recommendation has been drawn up by Colonel Greenleaf, chief surgeon of the Army, after a consultation with the yellow-fever experts on duty with the Army, and the commanding general directs that it be complied with as far as possible, the main purpose being the immediate isolation of those affected by the disease of yellow fever from the commands; second, frequent change of camp, and in all cases the selection of fresh ground, uncontaminated with the disease, and in every case, prior to occupation, the ground must be rigidly inspected, and, if necessary, burned over; third, the command must be kept away from all habitations, blockhouses, huts, and shanties of every description that have been occupied by Spanish or Cuban people; fourth, the establishment of guards and a rigid quarantine, to keep all native or Spanish inhabitants out of any of the camps and away from any intercourse of whatever description with the troops. This rule must be thoroughly enforced.

The commanding general further directs that you make daily reports to General Gilmore, adjutant-general at Army headquarters, of the condition of your command and any matters of importance, mentioning specifically the number of men affected with yellow fever, and giving the organization to which they belong.

You will also separate your camps, as far as practicable, so that any organization that may be more seriously affected will not contaminate the whole command.

By order of Major-General Miles:

J. C. GILMORE,
Brigadier-General, U. S. V.

HEADQUARTERS OF THE ARMY,
Playa del Este, July 17, 1898—7 p. m.

General SHAFTER:

What is the condition of your command to-day? Sent you report of medical board, with direction for changing camps, etc. If it is thought more advisable to move troops to fresh camps on the foothills or mountain sides, and surgeons advise, act accordingly.

The *St. Paul* should be unloaded immediately, and every transport unloaded and returned as soon as they are needed.

MILES,
Major-General, Commanding.

SIBONEY, July 17, 1898—8.48 p. m. (Received July 18, 1898.)

General MILES, *On Board Yale*:

Letters and orders in reference to movement of camp received and will be carried out. None is more anxious than myself to get away from here. It seems, from your orders given me, that you regard my force as a part of your command. Nothing will give me greater pleasure than serving under you, General, and I shall comply with all your requests and directions, but I was told by the Secretary that you were not to supersede me in command here. I will furnish the information called for as to condition of command to Gilmore, adjutant-general, Army headquarters.

SHAFTER, *Major-General*.

HEADQUARTERS OF THE ARMY,
Playa del Este, July 18, 1898. (Sent about 11.30 a. m.)

General SHAFTER:

Telegram received. Have no desire and have carefully avoided any appearance of superseding you. Your command is a part of the United States Army, which I have the honor to command, having been duly assigned thereto, and directed by the President to go wherever I thought my presence required, and give such general directions as I thought best concerning military matters, and especially directed to go to Santiago for a specific purpose. You will also notice that the order of the Secretary of War of July 13 left the matter to my discretion. I should regret that any event would cause either yourself or any part of your command to cease to be a part of mine.

Very truly, yours,

NELSON A. MILES,
Major-General, Commanding United States Army.

HEADQUARTERS OF THE ARMY,
Playa del Este, July 18, 1898—12 m.

SECRETARY OF WAR, *Washington, D. C.:*

Regarding your telegram of yesterday, I think it important to go direct to Port Fajardo, Cape de San Juan. All appliances for the expedition should be sent there, if not already en route to Santiago.

Tugs, lighters, construction corps, engineer corps under Colonel Black at Tampa, General Stone's boats now at Jacksonville, artillery, cavalry, siege train, and infantry, ample hospital supplies and appliances and ambulances, full transportation for all the organizations, should all be directed to go to Porto Rico; also officers to establish depots of quartermaster's, commissary, and ordnance supplies, and quartermaster's funds to the extent of \$100,000 for hire of native transportation and purchase of horses, should be sent.

Troops from the North have been heretofore sent, and I would suggest that Kiefer's division, from Miami, Fla., or troops from Texas, Louisiana, Mississippi, Alabama, Georgia, and Florida be sent as a part of the command to Porto Rico.

Paymasters, with ample funds, should be sent at once to Santiago and Porto Rico.

A strong, fast, seagoing dispatch boat should also be sent to Porto Rico.

MILES,
Major-General, Commanding.

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. YALE,
Guantanamo Bay, Cuba, July 20, 1898.

General SHAFTER, *Commanding*:

As there appears to be a decided increase of yellow-fever cases in your present location, a move should be made of the entire command to the highest ground practicable where the disease is not prevalent. In some cases you can send the troops to the mountains.

By command of Major-General Miles:

J. C. GILMORE, *Brigadier-General*.

The following is an extract from the telegram to the honorable Secretary of War concerning their condition:

HEADQUARTERS OF THE ARMY, ON BOARD U. S. S. YALE,
Guantanamo Bay, July 21, 1898.

SECRETARY OF WAR,
Washington, D. C.:

There is not a single regiment of regulars or volunteers with General Shafter's command that is not infected with yellow fever, from one case in the Eighth Ohio to thirty-six in the Thirty-third Michigan.

After consulting with best medical authorities, it is my opinion that the best mode of ridding the troops of the fever will be as I have directed, namely, the troops to go up as high into the mountains as possible, selecting fresh camps every day. If this does not check the spread of the disease, the only way of saving a large portion of the command will be to put them on transports and ship them to the New England coast, to some point to be designated by the Surgeon-General.

MILES,

Major-General, Commanding.

Before leaving Siboney I issued the following general field order:

GENERAL FIELD ORDERS, }
No. 1. }

HEADQUARTERS OF THE ARMY,
Siboney, Cuba, July 16, 1898.

The gratifying success of the American arms at Santiago de Cuba and some features of a professional character both important and instructive I hereby announce to the Army.

The declaration of war found our country with a small Army scattered over a vast territory. The troops composing this Army were speedily mobilized at Tampa, Fla. Before it was possible to properly equip a volunteer force strong appeals for aid came from the Navy, which had inclosed in the harbor of Santiago de Cuba an important part of the Spanish fleet. At that time the only efficient fighting force available was the United States Army, and in order to organize a command of sufficient strength the cavalry had to be sent dismounted to Santiago de Cuba with the infantry and artillery.

The expedition thus formed was placed under command of Major-General Shafter. Notwithstanding the limited time to equip and organize an expedition of this character, there was never displayed a nobler spirit of patriotism and fortitude on the part of officers and men going forth to maintain the honor of their country. After encountering the vicissitudes of an ocean voyage, they were obliged to disembark on a foreign shore and immediately engage in an aggressive campaign. Under drenching storms, intense and prostrating heat, within a fever-afflicted district, with little comfort or rest, either by day or night, they pursued their purpose of finding and conquering the enemy. Many of them, trained in the severe experience of the great war, and in frequent campaigns on the western plains, officers and men alike, exhibited a great skill, fortitude, and tenacity, with results which have added a new chapter of glory to their country's history. Even when their own generals in several cases were temporarily disabled, the troops fought on with the same heroic spirit until success was finally achieved. In many instances the officers placed themselves in front of their commands, and under their direct and skillful leadership the trained troops of a brave army were driven from the thickets and jungles of an almost inaccessible country. In the open field the troops stormed entrenched infantry, and carried and captured fortified works with an unsurpassed daring and disregard of death. By gaining commanding ground they made the harbor of Santiago untenable for the Spanish fleet, and practically drove it out to a speedy destruction by the American Navy.

While enduring the hardships and privations of such a campaign, the troops generously shared their scanty food with the 5,000 Cuban patriots in arms and the suffering people who had fled from the besieged city. With the twenty-four regiments and four batteries, the flower of the United States Army, were also three volunteer regiments. These, though unskilled in warfare, yet, inspired with the same spirit, contributed to the victory, suffered hardships, and made sacrifices with the rest. Where all did so well it is impossible, by special mention, to do justice to those who bore conspicuous part. But of certain unusual features mention can not be omitted, namely, the cavalry dismounted fighting and storming works as infantry, and a regiment of colored troops, who having shared equally in the heroism as well as the sacrifices, is now voluntarily engaged in nursing yellow-fever patients and burying the dead. The gallantry, patriotism, and sacrifices of the American Army, as illustrated in this brief campaign, will be fully appreciated by a grateful country, and the heroic deeds of those who have fought and fallen in the cause of freedom will ever be cherished in sacred memory and be an inspiration to the living.

By command of Major-General Miles:

J. C. GILMORE,
Brigadier-General, United States Volunteers.

I was anxious to proceed as quickly as possible to the Island of Porto Rico, and so telegraphed the authorities in Washington. After some delay authority was granted, and I started from Guantanamo on July 21 with 3,415 infantry and artillery, together with two companies of engineers and one company of the Signal Corps, on nine

transports, convoyed by Captain Higginson's fleet, consisting of the battle ship *Massachusetts* (flagship) and two smaller vessels. The *Fale* and *Columbia* were armed ships, but being loaded with troops, they were practically only available as transports. The above number includes the men who were sick, of which there were nearly a hundred, which reduced our effective force to about 3,300 men, and with that number we moved on the Island of Porto Rico, at that time occupied by 8,233 Spanish regulars and 9,107 volunteers.

For several days I had been anxiously looking for the arrival of tugs, launches, and lighters that had been ordered from Santiago, Washington, and Tampa, but none arrived prior to our departure, although I still hoped to meet them as we moved north through the Windward Passage. As all cablegrams concerning our landing place had passed over foreign cables, and as it was important to deceive the enemy (who, I afterwards learned, were marching to and intrenching the ground we were expected to occupy, at the very time we were taking possession of the southern coast of Porto Rico), and nonarrival of launches, lighters, etc., the question of successfully disembarking the command became somewhat serious; and, after all hope of receiving any appliances of this kind had disappeared, I considered the advisability of finding a safe harbor and capturing necessary appliances from the enemy. I therefore wrote the following letter to Captain Higginson while at sea:

ON BOARD U. S. S. YALE,
En route to Porto Rico, July 22, 1898.

SIR: Our objective point has been Port Fajardo or Cape San Juan, but so much time has occurred since the movement was decided in that direction and such publicity has been given the enterprise, that the enemy has undoubtedly become apprised of our purpose. While it is advisable to make a demonstration near the harbor of San Juan near Port Fajardo, or Port Figueras, I am not decided as to the advisability of landing at either of these places, as we may find them well occupied by strong Spanish forces. If we draw them to that vicinity, we might find it judicious to quickly move to Porto Guanica, where there is deep water near the shore—4½ fathoms—and good facilities for landing. We can move from Cape San Juan to that point in twelve hours (one night), and it would be impossible for the Spanish to concentrate their forces there before we will be reinforced. I am also informed that there are a large number of strong lighters in the harbors at Ponce and Guanica, as well as several sailing vessels, which would be useful. As it is always advisable not to do what your enemy expects you to do, I think it advisable after going around the northeast corner of Porto Rico, to go immediately to Guanica and land this force and move on Ponce, which is the largest city in Porto Rico. After, or before, this is accomplished we will receive large reinforcements, which will enable us to move in any direction or occupy any portion of the island of Porto Rico.

Your strong vessels can cover our landing and capture any vessels in the harbor of Ponce, Guanica, or the ports on the southern coast; one light vessel can remain at Cape San Juan to notify transports that will arrive where we have landed, and another could scout off the northwest corner of Porto Rico to intercept others and direct them where to find us.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding United States Army.

Capt. FRANCIS J. HIGGINSON,
Commanding United States Naval Convoy.

The following messages will further explain the circumstances and the final decision to change our course:

[Flag message for Captain Higginson.]

HEADQUARTERS OF THE ARMY,
On Board U. S. S. Yale, July 24, 1898.

General Miles desires, if possible, you send in advance any naval vessel you can spare to the Port Guanica, reported to be without fortifications or torpedoes. If secured, hold, and report quickly to us, Cape San Juan.

It is more important to land at Guanica than at Cape San Juan. If we can land there, he has troops enough to take the harbor of Ponce and let your fleet into that port.

Possibly all of this can be accomplished by going by the south side. Can send Captain Whitney, who was at Ponce in June, to you, if desired. Answer.

[Signal from *Massachusetts*, July 24, 1898.]

All right. Guanica it is. Shall I send orders to transport at Cape San Juan to join at Guanica?

[Answer sent by General Miles.]

Better be sure we can land at Guanica, then send for the transports. You can notify all vessels accordingly. Do you want Whitney?

Captain Whitney was sent to report to Captain Higginson on the *Massachusetts*, with his maps and reports.

[Flag message for Capt. Francis J. Higginson.]

HEADQUARTERS OF THE ARMY,
On Board *U. S. S. Yale*, July 24, 1898.

SIR: I would call your attention to the railroad between Ponce and Yauco, which I was informed passes right by the sea at one point, El Penon, about 8 miles west of Ponce. A vessel carrying a gun or two dispatched to this point could prevent reenforcements from being sent by rail from there to Yauco, or detachments of troops, rolling-stock supplies, etc., from being brought into Ponce from Yauco.

Very respectfully,

NELSON A. MILES,
Major-General, Commanding.

[Flag message for Capt. Francis J. Higginson.]

HEADQUARTERS OF THE ARMY,
U. S. S. Yale, July 24, 1898.

Railroad from Ponce to Yauco runs close to sea, 6 to 8 miles west Ponce. Shell or destroy this and prevent Spanish troops moving.

NELSON A. MILES,
Major-General, Commanding Army.

Instead of making a demonstration at Fort Fajardo, it was finally decided to go direct to Guanica. We arrived off that point near daylight on July 25, and the harbor was entered without opposition. The guns of the *Gloucester* fired several shots at some Spanish troops on shore. The landing of the marines, sailors, and our troops immediately commenced, and after a short skirmish the Spanish troops were driven from the place, and the flag of the United States was raised on the island.

In this, and in subsequent movements, I was very ably and cordially assisted by the Navy, which rendered invaluable aid in disembarking troops and supplies from the transports, using their steam launches to tow the lighters loaded with men and animals from the transports to the shore. Ten lighters were captured at Guanica and seventy at Ponce.

In the subsequent military operation in the interior, I found Captain Whitney's knowledge of the country, and the information gained by him in his perilous journey through Porto Rico, to be in every respect thoroughly accurate and of great value to me in the conduct of the campaign.

At daylight on the 26th of July, with six companies of the Sixth *Massachusetts* and one of the Sixth *Illinois* Volunteer Infantry, under command of Brigadier-General Garretson, an attack was made upon a strong force of Spaniards near Yauco, and after a spirited and decisive engagement the enemy was defeated and driven back, giving us possession of the railroad and the highway to the city of Ponce, and leaving them open for the march of General Henry's command to that place.

On the 27th of July Major-General Wilson arrived in the harbor of Guanica with General Ernst's brigade. The same day Commander Davis, of the *Dixie*, entered the port of Ponce and found that it was neither fortified nor mined. The next morning the fleet and transports, with General Wilson's command, moved into the harbor of Port Ponce. The troops disembarked and marched to the city of Ponce, a distance of 2 miles, and we took formal possession of the city and adjacent country, the Spanish troops withdrawing on the military road to San Juan, and our

troops being pushed well forward in that direction. In the meantime General Henry's command had been directed to proceed to Ponce, where he arrived shortly afterwards, joining General Wilson's command.

Before leaving I was aware of the fact that there existed considerable disaffection among the people in the southern portion of the island, and as our force was so much inferior to the Spanish I deemed it advisable, if possible, to encourage this feeling, and also to impress the people of the island with the good intentions of the American forces, and for this and other reasons I issued the following proclamation:

HEADQUARTERS OF THE ARMY,
Ponce, Porto Rico, July 28, 1898.

To the inhabitants of Porto Rico:

In the prosecution of the war against the Kingdom of Spain by the people of the United States in the cause of liberty, justice, and humanity, its military forces have come to occupy the island of Porto Rico. They come bearing the banner of freedom inspired by a noble purpose to seek the enemies of our country and yours, and to destroy or capture all who are in armed resistance. They bring you the fostering arm of a nation of free people, whose greatest power is in its justice and humanity to all those living within its fold. Hence, the first effect of this occupation will be the immediate release from your former political relations, and it is hoped a cheerful acceptance of the Government of the United States. The chief object of the American military forces will be to overthrow the armed authority of Spain and to give to the people of your beautiful island the largest measure of liberty consistent with this military occupation. We have not come to make war upon the people of a country that for centuries has been oppressed, but, on the contrary, to bring you protection, not only to yourselves, but to your property, to promote your prosperity, and bestow upon you the immunities and blessings of the liberal institutions of our Government. It is not our purpose to interfere with any existing laws and customs that are wholesome and beneficial to your people so long as they conform to the rules of military administration of order and justice. This is not a war of devastation, but one to give to all within the control of its military and naval forces the advantages and blessings of enlightened civilization.

NELSON A. MILES,
Major-General, Commanding United States Army.

And the following letter of instructions was published for the information and guidance of all concerned:

HEADQUARTERS OF THE ARMY,
Port Ponce, Porto Rico, July 29, 1898.

SIR: I have the honor to inform you that the Major-General Commanding the Army of the United States directs me to communicate to you the following instructions, which will govern you or your successor in the discharge of your duties relating to the military government of the territory now occupied, or hereafter to be occupied, by the United States forces under your command:

The effect of the military occupation of the enemy's territory is the severance of the former political relations of the inhabitants, and it becomes their duty to yield obedience to the authority of the United States, the power of the military occupant being absolute and supreme and immediately operating upon the political conditions of the inhabitants. But generally, as long as they yield obedience to their new condition, security in their person and property and in all other private rights and relations will be duly respected.

The municipal laws, in so far as they affect the private rights of persons and property and provide for the punishment of crime, should be continued in force as far as they are compatible with the new order of things, and should not be suspended unless absolutely necessary to accomplish the objects of the present military occupation. These laws should be administered by the ordinary tribunals substantially as they were before the occupation. For this purpose the judges and other officials connected with the administration of justice may, if they accept the authority of the United States, continue to administer the ordinary laws of the land as between man and man, under the supervision of the commander of the United States forces. Should it, however, become necessary to the maintenance of law and order, you have the power to replace or expel the present officials, in part or altogether, and to substitute others, and to create such new and supplementary tribunals as may be necessary. In this regard you must be guided by your judgment and a high sense of justice.

It is to be understood that under no circumstances shall the criminal courts exercise jurisdiction over any crime or offense committed by any person belonging to the Army of the United States, or any retainer of the Army, or person serving with

it, or any persons furnishing or transporting supplies for the Army; nor over any crime or offense committed on either of the same by any inhabitant or temporary resident of the occupied territory. In such cases, except when courts-martial have jurisdiction, jurisdiction to try and punish is vested in military commissions and such provost courts as you may find necessary to establish. The native constabulary, or police force, will, so far as may be practicable, be preserved. The freedom of the people to pursue their accustomed occupations will be abridged only when it may be necessary to do so.

All public funds and securities belonging to the Spanish Government in its own right, and all movable property, arms, supplies, etc., of such Government, should be seized and held for such uses as proper authority may direct. And whatever real property the Spanish Government may have held should be taken charge of and administered; the revenues thereof to be collected and reported for such disposition as may be made of the same, under instructions from these headquarters.

All public means of transportation, such as telegraph lines, cables, railways, telephone lines, and boats belonging to the Spanish Government, should be taken possession of and appropriated to such use as may be deemed expedient.

Churches and buildings devoted to religious worship, and all schoolhouses, should be protected.

Private property, whether belonging to individuals or corporations, is to be respected, and can be confiscated only as hereinafter indicated. Means of transportation, such as telegraph lines, and cables, railways, and boats, may, although they belong to private individuals or corporations, be seized by the military occupant, but, unless destroyed under military necessity, are not to be retained.

As a result of military occupation of this country, the taxes and duties payable by the inhabitants to the former government become payable to the military occupant; the money so collected to be used for the purpose of paying the necessary and proper expenses under military government.

Private property will not be taken except upon the order of brigade and division commanders in cases of absolute military necessity, and when so taken for the public use of the army will be paid for in cash at a fair valuation.

All ports and places in actual possession of our forces will be opened to the commerce of all neutral nations, as well as our own, in articles not contraband of war, upon payment of the prescribed rates of duty which may be in force at the time of the importation.

A memorandum in respect to the jurisdiction of military commissions and provost courts is herewith inclosed.

Very respectfully,

J. C. GILMORE,
Brigadier-General, U. S. F.

Maj. Gen. J. M. WILSON, U. S. V.,
Commanding First Division, First Corps, Ponce, Porto Rico.

[Inclosure.]

I. Except as hereinafter restricted, and subject to the supervision and control of the commanding general, the jurisdiction of the municipal government and of the civil and criminal courts remain in force.

II. The said criminal courts shall not exercise jurisdiction over any crime or offense committed by any person belonging to the Army of the United States, or any retainer of the Army, or person serving with it, or any person furnishing or transporting supplies for the Army; nor over any crime or offense committed on either of the same by any inhabitant or temporary resident of said territory. In such cases, except when courts-martial have jurisdiction, jurisdiction to try and punish is vested in military commissions and the provost court, as hereinafter set forth.

III. The crimes and offenses triable by military commission are murder, manslaughter, assault and battery with intent to kill, robbery, rape, assault and battery with intent to commit rape, and such other crimes, offenses, and violations of the laws of war as may be referred to it for trial by the commanding general. The punishment awarded by military commission shall conform, as far as possible, to the laws of the United States, or the custom of war. Its sentence is subject to the approval of the commanding general.

IV. The provost court has jurisdiction to try all other crimes and offenses referred to in section II of this order, not exclusively triable by court-martial or military commission, including violations of orders of the laws of war, and such cases as may be referred to it by the commanding general. It shall have power to punish with confinement, with or without hard labor, for not more than * * * or with fine not exceeding * * * or both. Its sentence does not require the approval of the commanding general, but may be mitigated or remitted by him.

V. The judge of the provost court is appointed by the commanding general. When in the opinion of the provost court its power of punishment is inadequate, it shall certify the case to the commanding general for his consideration and action.

Brigadier-General Schwan arrived July 31, and was subsequently instructed to disembark part of the Eleventh Infantry, under Colonel De Russey, at Guanica, and march to Yauco and thence west with an additional force of two batteries of artillery and one troop of cavalry. The following letter of instructions was addressed to General Schwan:

HEADQUARTERS OF THE ARMY,
Port Ponce, Porto Rico, August 6, 1898.

GENERAL: The Major-General Commanding the Army directs me to transmit to you the following instructions:

You will proceed from Ponce with the six companies of the Eleventh Infantry to Yauco, moving by rail if desirable. You will also move by wagon road Troop A, Fifth Cavalry, and two batteries of light artillery. At Yauco you will take the remainder of the Eleventh Infantry and two companies of the Nineteenth and proceed to Sabana Grande, San German, Mayaguez, thence to Lares and Arecibo.

At Yauco you will take with you all the wagon transportation brought from Guanica.

You will drive out or capture all Spanish troops in the western portion of Porto Rico. You will take all necessary precautions and exercise great care against being surprised or ambushed by the enemy, and make the movement as rapidly as possible, at the same time exercising your best judgment in the care of your command to accomplish the object of your expedition.

It is expected that at Arecibo you will be joined by the balance of your brigade. Such rations and supplies will be taken as you decide to be proper and necessary.

Report frequently by telegraph.

Very respectfully,

J. C. GILMORE,
Brigadier-General, U. S. V.

Brig Gen. THEODORE SCHWAN,
Commanding Brigade, Ponce, Porto Rico.

Major-General Brooke arrived July 31, and was directed to disembark his command at Arroyo, and move thence to Cayei. On August 5 he had a sharp engagement with the Spanish troops at Guayama, which was finally occupied by our forces. An action took place near Guayama on August 8, the Spaniards being driven from their position farther in the direction of Cayei. Arrangements for investing and attacking that place, both directly and in the rear, were promptly made, and were about to be consummated when the order for cessation of hostilities arrived.

On August 9 General Schwan's command advanced from Yauco westward, occupying successively the important towns of Sabana Grande, San German, Lares, and Arecibo, finally entering the city of Mayaguez, after a sharp engagement on August 10 near Hormigueros, in which a strong force of the enemy was engaged. In this action, in which artillery, infantry, and cavalry were employed, the Spanish forces, although strongly posted on ground of their own selection, and skillfully disposed, and being equal in strength to our own, were routed with severe loss, while our own loss was but 1 killed and 16 wounded. The enemy was pursued toward Lares, which town would have been occupied August 13 by our troops had not the order to suspend hostilities been received. Near this place the advance under Colonel Burge encountered the enemy, who was defeated without loss to our force.

In the meantime General Stone had made a practicable road over what had been considered an impassable trail, by way of Adjuntas and Utuado, through the center of the territory; and General Henry moved his command over that road with the object of intercepting the enemy retreating before General Schwan, and later of effecting a junction with him at Arecibo, his advance troops having already reached the immediate vicinity of that place. This operation would have formed a strong division on the line of retreat of the Spanish troops occupying the western portion of the island.

At Coamo a sharp engagement took place on August 9 between the troops of Major-General Wilson's command, under the personal direction of Brigadier-General Ernst, and the Spanish forces at that place. The United States troops, guided by Lieuten-

ant-Colonel Biddle, of the Engineers, made a skillful flank movement at Coamo, which was admirably executed by the Sixteenth Pennsylvania Regiment Volunteer Infantry, under Colonel Hulings. Passing over a mountain trail they made a wide detour, coming in rear of the Spanish troops under cover of night without being discovered, and striking the military road to San Juan, cut off the enemy's retreat. In this engagement the commanding officer of the Spanish troops and the second in command were killed, and 167 prisoners taken.

The road to Aibonito was thus cleared and our troops were advanced and well disposed for the capture of the Spanish forces that had taken positions near that place.

At Asomanto, on the 12th of August, the artillery of General Wilson's command began shelling the enemy's position preparatory to an advance in front, while a rear attack was to be made by General Ernst's brigade. This command was under arms and ready to move August 13, when orders were received suspending hostilities.

During the nineteen days of active campaign on the Island of Porto Rico, a large portion of the island was captured by the United States forces and brought under our control. Our forces were in such a position as to make the positions of the Spanish forces, outside of the garrison at San Juan, utterly untenable. The Spaniards had been defeated or captured in the six different engagements which took place, and in every position they had occupied up to that time. The volunteers had deserted their colors, and many of them had surrendered to our forces and taken the oath of allegiance. This had a demoralizing effect upon the regular Spanish troops.

The success of the enterprise was largely due to the skill and good generalship of the officers in command of the different divisions and brigades. Strategy and skillful tactics accomplished what might have occasioned serious loss to achieve in any other way. The loss of the enemy in killed, wounded, and captured was nearly ten times our own, which was only 3 killed and 40 wounded. Thus the Island of Porto Rico became a part of the United States. It embraces nearly 3,700 square miles, and has a population of nearly a million souls. It no longer affords a base of operations for any foreign government, thereby being a menace to ours. Under the rule of nations, which requires troops to remain during a truce in exactly the position they occupied at the time of cessation of hostilities, the commands were obliged to stay where they were, without regard to the suitability of the camping grounds, and as hostilities ceased during the rainy season in Porto Rico, this requirement had an injurious effect upon the health of the troops. They therefore suffered to some extent on account of exposure and the unusual climatic effects incident to the country. As soon as practicable, however, a large portion of the troops were returned in good condition to the United States.

The field and siege artillery were well organized and equipped, under the direction of Brig. Gen. John I. Rodgers, and rendered efficient service wherever used. In my opinion, the siege train should remain as at present organized.

The bureau of military information, under charge of Lieutenant-Colonel Wagner, was exceedingly useful, and furnished valuable and important information obtained by it regarding the nature of the enemy's country and the position of their forces.

The Signal Corps, under Col. James Allen, rendered very excellent service, especially in the use of ocean cables, and the field telegraph and signal detachment under charge of Major Reber rendered most important service. Telegraph and telephone lines were extended hundreds of miles and followed close to the picket and skirmish lines.

On returning to the United States from Porto Rico, Lieutenant-Colonel Rowan and Lieut. Charles F. Parker made a journey of nearly 2,000 miles through the territory of Cuba, and obtained most valuable information concerning that country and the present condition of its inhabitants, which is both of political and military interest.

I trust that the services of both officers and soldiers in these campaigns may be appreciated by a generous Government and a grateful people. I have recommended a small list of officers who have rendered conspicuous, distinguished, and gallant services for promotion and brevets, and I hope that these recommendations may be favorably considered. I may possibly desire to add a few names to the list already submitted.

It is gratifying to record that during the war not a single defeat has been met, and not a prisoner, color, gun, or rifle has been captured by the enemy. In this respect the war has been most remarkable, and, perhaps, unparalleled. Under all circumstances and in spite of many most trying difficulties the troops have maintained the fortitude of the American character and the honor of their arms.

While but a small portion of the available forces of the United States—approximately, 52,000 men—has been on foreign soil and engaged in fighting a foreign foe, those that have been in the presence of the enemy have fairly demonstrated the character and fortitude of the military forces of the United States.

The experience of the last few months, I trust, will be valuable to the people and Government of the United States. The value of proper defenses for our ports, harbors, and seaport cities, of inestimable wealth, has been demonstrated; and I trust that the system already adopted for coast defenses, the completion of which has been so long delayed, may be carried out without unnecessary delay. I have urged the importance of this in my annual reports for the last thirteen years.

For several years I have urged the importance of the Government's adopting a standard of strength for its military forces that should be commensurate with the interests of the Government in its growth and development, and proportionate to its population and wealth. Spasmodic vibration from a weak and ineffective army to one of gigantic proportions does not seem to be best for the welfare and safety of the nation, and I think it more judicious for the Government to fix a certain percentage of trained military men in proportion to the population. The Army would thereby have a more healthy growth as the nation develops. In fact, this system, if once adopted, would be as practicable for one hundred years as for a single decade. The art of war was never so much an exact science as at the present time. The appliances used in modern warfare are constantly changing, and are steadily increasing in effective force; so that it is of the utmost importance that the Government should have the most skilled and efficient forces practicable. I therefore renew my former recommendation that the Government authorize enlistments in the Army at the rate of one soldier to every 1,000 of the population. This would practically continue in service the same number as does the act of Congress approved April 26, 1898, authorizing the increase of the Regular Army, provided for, viz, 62,579 men; but unfortunately there was a provision in that act which required the Army to be reduced to its former peace basis, which was entirely inadequate to the needs and interests of the Government.

I also recommend that Congress authorize an auxiliary force of native troops, to be officered principally by United States Army officers, for service in Porto Rico, Cuba, and the Philippine Islands, not to exceed two soldiers to every one thousand of the population of those islands. This would give the United States a most valuable auxiliary force. It would pacify the native elements of the islands, and would be in the interests of economy and good government. This force could be used in a way similar to the mounted police in Canada and the British forces in Egypt and India.

I recommend that Congress be requested to take immediate action upon this question of increasing the Army, as I consider it of vital importance. If the system I have suggested is adopted it would give us very nearly an available force of 100,000 men, and would enable the volunteers who enlisted for the war to be returned to their homes without delay.

I desire to make special mention of the officers on my staff, Brig. Gen. J. C. Gil-

more, Col. Charles R. Greenleaf, and Lieut. Col. Marion P. Maus, who rendered very important services at Santiago de Cuba and in Porto Rico, being exposed at the former place to all the dangers of yellow-fever camps; and also Brig. Gen. Roy Stone, Col. James Allen, Lieut. Col. J. W. Clous, Lieut. Col. Arthur L. Wagner, Lieut. Col. William M. Black, Lieut. Col. Francis Michler, Lieut. Col. Andrew S. Rowan, Lieut. Col. Samuel Reber, Maj. W. H. Daly, Maj. John G. Black, and Capt. Henry W. Whitney, who rendered most efficient and valuable services in Porto Rico.

Accompanying this report are two maps of Cuba and one of Porto Rico.

Very respectfully, your obedient servant,

NELSON A. MILES,

Major-General, Commanding.

The SECRETARY OF WAR.

REPORT OF MAJOR-GENERAL MERRITT, COMMANDING THE TROOPS IN THE PHILIPPINES.

STEAMSHIP CHINA,

At Sea, August 31, 1898.

SIR: I have the honor to submit the following report of the operations of the troops under my command in the expedition to the Philippine Islands, the campaign ending with the capture of Manila, August 13, 1898, and the subsequent occupation of the city:

In obedience to the order assigning me to the command of the Department of the Pacific, and the special instructions from the President, furnished me by the honorable Secretary of War, under date of May 28, 1898, I embarked with my staff from San Francisco on the steamer *Newport* June 29 and arrived at Cavite, Manila Bay, July 25, 1898. The military situation in Manila Bay I found to be as follows:

The American fleet of war ships, commanded by Rear-Admiral George Dewey, was anchored in line off Cavite and just outside of the transports and supply vessels engaged in the military service. The distinguished admiral above mentioned was in full control of the navigation of the bay, and his vessels passed and repassed within range of the water batteries of the town of Manila without drawing the fire of the enemy.

Brig. Gen. Thomas M. Anderson, United States Volunteers, was in command of the military forces prior to my arrival, and from his report I learned that his headquarters were in Cavite and that the troops were disposed as follows:

The Second Oregon, detachments of California Heavy Artillery, Twenty-third Infantry, and Fourteenth Infantry occupied the town of Cavite; while Brig. Gen. F. V. Greene, United States Volunteers, was encamped with his brigade, consisting of the Eighteenth Infantry; Third United States Artillery; Company A, Engineer Battalion; First Colorado, First California, First Nebraska, Tenth Pennsylvania, and Batteries A and B of the Utah Artillery, along the line of the bay shore near the village of Paranaque, about 5 miles by water and 25 miles by the roads from Cavite.

Immediately after my arrival I visited General Greene's camp and made a reconnaissance of the position held by the Spanish, and also the opposing lines of the insurgent forces, hereafter to be described. I found General Greene's command encamped on a strip of sandy land running parallel to the shore of the bay and not far distant from the beach, but owing to the great difficulties of landing supplies, the greater portion of the force had shelter tents only and were suffering many discomforts, the camp being situated in a low, flat place, without shelter from the heat of the tropical sun or adequate protection during the terrific downpours of rain so frequent at this season. I was at once struck by the exemplary spirit of patient, even cheerful, endurance shown by the officers and men under such circum-

stances, and this feeling of admiration for the manner in which the American soldier, volunteer and regular alike, accept the necessary hardships of the work they have undertaken to do has grown and increased with every phase of the difficult and trying campaign which the troops of the Philippine expedition have brought to such a brilliant and successful conclusion.

I discovered during my visit to General Greene that the left or north flank of his brigade camp extended to a point on the "Calle Real" about 3,200 yards from the outer line of Spanish defenses of the city of Manila. This Spanish line began at the powder magazine, or old Fort San Antonio, within a hundred yards of the beach and just south of the Malate suburb of Manila, and stretched away to the Spanish left in more or less detached works, eastward, through swamps and rice fields, covering all the avenues of approach to the town and encircling the city completely.

The Filipinos, or insurgent forces at war with Spain, had, prior to the arrival of the American land forces, been waging a desultory warfare with the Spaniards for several months, and were at the time of my arrival in considerable force, variously estimated and never accurately ascertained, but probably not far from 12,000 men. These troops, well supplied with small arms, with plenty of ammunition and several field guns, had obtained positions of investment opposite to the Spanish line of detached works throughout their entire extent; and on the particular road called the "Calle Real," passing along the front of General Greene's brigade camp and running through Malate to Manila, the insurgents had established an earthwork or trench within 800 yards of the powder-magazine fort. They also occupied as well the road to the right, leading from the village of Pasay, and the approach by the beach was also in their possession. This anomalous state of affairs, namely, having a line of quasi-hostile native troops between our forces and the Spanish position, was, of course, very objectionable, but it was difficult to deal with, owing to the peculiar condition of our relations with the insurgents, which may be briefly stated as follows:

Shortly after the naval battle of Manila Bay the principal leader of the insurgents, Gen. Emilio Aguinaldo, came to Cavite from Hongkong, and, with the consent of our naval authorities, began active work in raising troops and pushing the Spaniards in the direction of the city of Manila. Having met with some success, and the natives flocking to his assistance, he proclaimed an independent government of republican form, with himself as president, and at the time of my arrival in the islands the entire edifice of executive and legislative departments and subdivision of territory for administrative purposes had been accomplished, at least on paper, and the Filipinos held military possession of many points in the islands other than those in the vicinity of Manila.

As General Aguinaldo did not visit me on my arrival nor offer his services as a subordinate military leader, and as my instructions from the President fully contemplated the occupation of the islands by the American land forces, and stated that "the powers of the military occupant are absolute and supreme and immediately operate upon the political condition of the inhabitants," I did not consider it wise to hold any direct communication with the insurgent leader until I should be in possession of the city of Manila, especially as I would not until then be in a position to issue a proclamation and enforce my authority, in the event that his pretensions should clash with my designs.

For these reasons the preparations for the attack on the city were pressed and military operations conducted without reference to the situation of the insurgent forces. The wisdom of this course was subsequently fully established by the fact that when the troops of my command carried the Spanish intrenchments, extending from the sea to the Pasay road, on the extreme Spanish right, we were under no obligations, by prearranged plans of mutual attack, to turn to the right and clear the front still held against the insurgents, but were able to move forward at once and occupy the city and suburbs.

To return to the situation of General Greene's brigade as I found it on my arrival,

it will be seen that the difficulty in gaining an avenue of approach to the Spanish line lay in the fact of my disinclination to ask General Aguinaldo to withdraw from the beach and the "Calle Real," so that Greene could move forward. This was overcome by instructions to General Greene to arrange, if possible, with the insurgent brigade commander in his immediate vicinity to move to the right and allow the American forces unobstructed control of the roads in their immediate front. No objection was made, and accordingly General Greene's brigade threw forward a heavy outpost line on the "Calle Real" and the beach and constructed a trench, in which a portion of the guns of the Utah batteries was placed.

The Spanish, observing this activity on our part, made a very sharp attack with infantry and artillery on the night of July 31. The behavior of our troops during this night attack was all that could be desired, and I have, in cablegrams to the War Department, taken occasion to commend by name those who deserve special mention for good conduct in the affair. (For particulars of the action see the appended reports of the brigade commander.) Our position was extended and strengthened after this and resisted successfully repeated night attacks, our forces suffering, however, considerable loss in wounded and killed, while the losses of the enemy, owing to the darkness, could not be ascertained. (See appended reports.)

The strain of the night fighting and the heavy details for outpost duty made it imperative to reenforce General Greene's troops with General MacArthur's brigade, which had arrived in transports on the 31st of July. The difficulties of this operation can hardly be overestimated. The transports were at anchor off Cavite, 5 miles from a point on the beach where it was desired to disembark the men. Several squalls, accompanied by floods of rain, raged day after day, and the only way to get the troops and supplies ashore was to load them from the ship's side into native lighters (called "cascos") or small steamboats, move them to a point opposite the camp, and then disembark them through the surf in small boats, or by running the lighters head on to the beach. The landing was finally accomplished, after days of hard work and hardship; and I desire here to express again my admiration for the fortitude and cheerful willingness of the men of all commands engaged in this operation.

Upon the assembly of MacArthur's brigade in support of Greene's, I had about 8,500 men in position to attack, and I deemed the time had come for final action. During the time of the night attacks I had communicated my desire to Admiral Dewey that he would allow his ships to open fire on the right of the Spanish line of intrenchments, believing that such action would stop the night firing and loss of life, but the admiral had declined to order it unless we were in danger of losing our position by the assaults of the Spanish, for the reason that, in his opinion, it would precipitate a general engagement, for which he was not ready. Now, however, the brigade of General MacArthur was in position and the *Monterey* had arrived, and under date of August 6 Admiral Dewey agreed to my suggestion that we should send a joint letter to the Captain-General notifying him that he should remove from the city all noncombatants within forty-eight hours, and that operations against the defenses of Manila might begin at any time after the expiration of that period.

This letter was sent August 7 (see copy appended), and a reply was received the same date (copy hereto appended), to the effect that the Spanish were without places of refuge for the increased numbers of wounded, sick women, and children now lodged within the walls. On the 9th a formal joint demand for the surrender of the city was sent in. (See copy hereto appended.) This demand was based upon the hopelessness of the struggle on the part of the Spaniards, and that every consideration of humanity demanded that the city should not be subjected to bombardment under such circumstances. The Captain-General's reply, of same date (see copy attached), stated that the council of defense had declared that the demand could not be granted; but the Captain-General offered to consult his Government if we would allow him the time strictly necessary for the communications by way of Hongkong.

This was declined on our part for the reason that it could, in the opinion of the admiral and myself, lead only to a continuance of the situation, with no immediate result favorable to us, and the necessity was apparent and very urgent that decisive action should be taken at once to compel the enemy to give up the town, in order to relieve our troops from the trenches and from the great exposure to unhealthy conditions which were unavoidable in a bivouac during the rainy season. The seacoast batteries in defense of Manila are so situated that it is impossible for ships to engage them without firing into the town, and as the bombardment of a city filled with women and children, sick and wounded, and containing a large amount of neutral property, could only be justified as a last resort, it was agreed between Admiral Dewey and myself that an attempt should be made to carry the extreme right of the Spanish line of intrenchments in front of the positions at that time occupied by our troops, which, with its flank on the seashore, was entirely open to the fire of the navy.

It was not my intention to press the assault at this point, in case the enemy should hold it in strong force, until after the navy had made practicable breaches in the works and shaken the troops holding them, which could not be done by the army alone, owing to the absence of siege guns. This is indicated fully in the orders and memorandum of attack hereto appended. It was believed, however, as most desirable, and in accordance with the principles of civilized warfare, that the attempt should be made to drive the enemy out of his intrenchments before resorting to the bombardment of the city.

By orders issued some time previously MacArthur's and Greene's brigades were organized as the Second Division of the Eighth Army Corps, Brig. Gen. Thomas M. Anderson commanding; and in anticipation of the attack General Anderson moved his headquarters from Cavite to the brigade camps and assumed direct command in the field. Copies of the written and verbal instructions, referred to above and appended hereto, were given to the division and brigade commanders on the 12th, and all the troops were in position on the 13th at an early hour in the morning.

About 9 a. m. on that day our fleet steamed forward from Cavite and before 10 a. m. opened a hot and accurate fire of heavy shells and rapid-fire projectiles on the sea flank of the Spanish intrenchments at the powder magazine fort, and at the same time the Utah batteries, in position in our trenches near the "Calle Real," began firing with great accuracy. At 10.25, on a prearranged signal from our trenches that it was believed our troops could advance, the navy ceased firing, and immediately a light line of skirmishers from the Colorado regiment of Greene's brigade passed over our trenches and deployed rapidly forward, another line from the same regiment from the left flank of our earthworks advancing swiftly up the beach in open order. Both these lines found the powder magazine fort and the trenches flanking it deserted, but as they passed over the Spanish works they were met by a sharp fire from a second line situated in the streets of Malate, by which a number of men were killed and wounded, among others the soldier who pulled down the Spanish colors still flying on the fort and raised our own. (See detailed report of brigade commander.)

The works of the second line soon gave way to the determined advance of Greene's troops, and that officer pushed his brigade rapidly through Malate and over the bridges to occupy Binondo and San Miguel, as contemplated in his instructions. In the meantime the brigade of General MacArthur, advancing simultaneously on the Pasay road, encountered a very sharp fire, coming from the blockhouses, trenches, and woods in his front, positions which it was very difficult to carry, owing to the swampy condition of the ground on both sides of the roads and the heavy undergrowth concealing the enemy. With much gallantry and excellent judgment on the part of the brigade commander and the troops engaged these difficulties were overcome with a minimum loss (see report of brigade commander

appended), and MacArthur advanced and held the bridges and the town of Malate as was contemplated in his instructions.

The city of Manila was now in our possession, excepting the walled town, but shortly after the entry of our troops into Malate a white flag was displayed on the walls, whereupon Lieut. Col. C. A. Whittier, United States Volunteers, of my staff, and Lieutenant Brunby, United States Navy, representing Admiral Dewey, were sent ashore to communicate with the Captain-General. I soon personally followed these officers into the town, going at once to the palace of the Governor-General, and there, after a conversation with the Spanish authorities, a preliminary agreement of the terms of capitulation was signed by the Captain-General and myself. This agreement was subsequently incorporated into the formal terms of capitulation, as arranged by the officers representing the two forces, a copy of which is hereto appended and marked.

Immediately after the surrender the Spanish colors on the sea front were hauled down and the American flag displayed and saluted by the guns of the Navy. The Second Oregon Regiment, which had proceeded by sea from Cavite, was disembarked and entered the walled town as a provost guard, and the colonel was directed to receive the Spanish arms and deposit them in places of security. The town was filled with the troops of the enemy driven in from the intrenchments, regiments formed and standing in line in the streets, but the work of disarming proceeded quietly and nothing unpleasant occurred.

In leaving the subject of the operations of the 13th, I desire here to record my appreciation of the admirable manner in which the orders for attack and the plan for occupation of the city were carried out by the troops exactly as contemplated. I submit that for troops to enter under fire a town covering a wide area, to rapidly deploy and guard all principal points in the extensive suburbs, to keep out the insurgent forces pressing for admission, to quietly disarm an army of Spaniards more than equal in numbers to the American troops, and finally by all this to prevent entirely all rapine, pillage, and disorder, and gain entire and complete possession of a city of 300,000 people filled with natives hostile to the European interests, and stirred up by the knowledge that their own people were fighting in the outside trenches, was an act which only the law-abiding, temperate, resolute American soldier, well and skillfully handled by his regimental and brigade commanders, could accomplish.

Prior to the action on the 13th, General Order No. 3, hereto appended, was issued, and a copy was sent to Aguinaldo's representative as an indication of the conduct that would be expected of them in the event that any bands of the insurgents should effect an entrance to the city. After the action, General Order No. 6, hereto appended, was published to the troops as a sincere expression of my appreciation of their conduct.

The amount of public funds and the numbers of the prisoners of war and small arms taken have been reported in detail by cable. It will be observed that the trophies of Manila were nearly \$900,000, 13,000 prisoners, and 22,000 arms.

Immediately after the surrender my headquarters were established in the ayuntamiento, or city office of the Governor-General, where steps were at once inaugurated to set up the government of military occupancy. A proclamation was issued and published in all the newspapers of the city in English, Spanish, and native dialect, and one of my two very efficient brigade commanders, General MacArthur, was appointed provost-marshal-general and civil governor of the town, while the other, General Greene, was selected for the duties of intendente general de hacienda, or director of financial affairs, the collectors of customs and internal revenue reporting to him. Lieutenant-Colonel Whittier, United States Volunteers, of my staff, an efficient business man of long experience, was appointed collector of the customs, and a bonded officer, Major Whipple, of the pay department, was announced as custodian of the public funds, to whom all Spanish money derived from any source was to be transmitted for safe-keeping and disbursement under orders.

On the 16th a cablegram containing the text of the President's proclamation directing a cessation of hostilities was received by me, and at the same time an order to make the fact known to the Spanish authorities, which was done at once. This resulted in a formal protest from the Governor-General in regard to the transfer of public funds then taking place, on the ground that the proclamation was dated prior to the surrender. To this I replied that the status quo in which we were left with the cessation of hostilities was that existing at the time of the receipt by me of the official notice, and that I must insist upon the delivery of the funds. The delivery was made under protest.

After the issue of my proclamation and the establishment of my office as military governor, I had direct written communication with General Aguinaldo on several occasions. He recognized my authority as military governor of the town of Manila and suburbs, and made professions of his willingness to withdraw his troops to a line which I might indicate, but at the same time asking certain favors for himself. The matters in this connection had not been settled at the date of my departure. Doubtless much dissatisfaction is felt by the rank and file of the insurgents that they have not been permitted to enjoy the occupancy of Manila, and there is some ground for trouble with them owing to that fact; but, notwithstanding many rumors to the contrary, I am of the opinion that the leaders will be able to prevent serious disturbances, as they are sufficiently intelligent and educated to know that to antagonize the United States would be to destroy their only chance of future political improvement.

On the 28th instant I received a cablegram directing me to transfer my command to Major-General Otis, United States Volunteers, and to proceed to Paris, France, for conference with the peace commissioners. I embarked on the steamer *China* on the 30th in obedience to these instructions.

In view of my short occupancy of the office of military governor (sixteen days), I shall leave to my successor to report in detail and at length on the many important matters of administration and questions affecting trade and commerce which it was not difficult to see would soon arise.

I may add, however, that great changes for the better have taken place in Manila since the occupancy of the city by the American troops. The streets have been cleaned under the management of General MacArthur, and the police, under Colonel Reeve, Thirteenth Minnesota, were most proficient in preserving order. A stranger to the city might easily imagine that the American forces had been in control for months rather than days.

In concluding this report I wish formally to declare my indebtedness for the success of the expedition to the brigade commanders, the division commander, the members of my staff, and my personal aids. While we were still in San Francisco these latter were sent to me to report to the commanders of the different organizations in camp, and were busy assisting in instructing the newly arrived troops. That they did good service in this direction I have the assurance of all concerned.

Brig. Gen. R. P. Hughes, my inspector-general at San Francisco, was especially noticeable in accomplishing the instruction of the green troops that came to the city, many of them without arms, clothing, or equipment of any kind. His services will undoubtedly be duly recognized by Major-General Otis, with whom I left him to continue the good work.

I desire especially to express my acknowledgments to Brigadier-General Babcock, my adjutant-general and chief of staff, for his most valuable services from the inception of the campaign in San Francisco to the close of the work at the present time. This officer is too well known to require special mention of his services in any one direction. He was my right arm, not only in the office but in the field, and much of the success that has attended the expedition is due to his individual efforts.

I desire especially to mention Major McClure and Major Whipple, of the Pay Department, who volunteered their services after they had completed their legitimate duties, and performed excellent work whenever called upon. Major McClure

was especially important in his services immediately after the surrender, taking long rides under my orders to the Spanish lines, and bearing instructions to them which resulted in effecting their withdrawal in such manner as to prevent the incursion of the insurgents in the northern portions of the city. Other officers have been named in my special reports and have been recommended for brevets and promotion.

I especially call attention to the services of Captain Mott, as mentioned in the report of Brigadier-General Greene. He was cheerful, willing, intelligent, and energetic in the discharge of the multifarious duties imposed upon him in connection with our troops and trenches during the rainy season, and in the final action showed those rare characteristics which stamp him as a very superior soldier.

It is possible, in the hurry attending the making up of this report, that some matters to which I would call attention have been neglected. If this proves to be true I desire to retain the right to make ample amendment in future reports.

I desire, in conclusion, to express my sincere thanks on behalf of my command and myself for the most welcome cablegram of congratulation from His Excellency the President of the United States, which was immediately published to the troops in General Order No. 11, hereto appended.

Very respectfully,

WESLEY MERRITT,
Major-General, U. S. A.

HEADQUARTERS U. S. LAND AND NAVAL FORCES,
Manila Bay, Philippine Islands, August 7, 1898.

The General in Chief Commanding Spanish forces in Manila.

SIR: We have the honor to notify your excellency that operations of the land and naval forces of the United States against the defenses of Manila may begin at any time after the expiration of forty-eight hours from the hour of receipt by you of this communication, or sooner if made necessary by an attack on your part.

This notice is given in order to afford you an opportunity to remove all noncombatants from the city.

Very respectfully,

WESLEY MERRITT,
Major-General, United States Army,
Commanding land forces of the United States.
GEORGE DEWEY,
Rear-Admiral, United States Navy,
Commanding United States naval force on Asiatic station.

[Translation.]

MANILA, August 7, 1898.

The Governor-General and Captain-General of the Philippines to the Major-General of the Army and the Rear-Admiral of the Navy, commanding, respectively, the military and naval forces of the United States.

GENTLEMEN: I have the honor to inform your excellencies that at half past 12 today I received the notice with which you favor me, that after forty-eight hours have elapsed you may begin operations against this fortified city, or at an earlier hour if the forces under your command are attacked by mine.

As your notice is sent for the purpose of providing for the safety of noncombatants, I give thanks to your excellencies for the humane sentiments you have shown, and state that, finding myself surrounded by insurrectionary forces, I am without places of refuge for the increased numbers of wounded, sick, women, and children who are now lodged within the walls.

Very respectfully, and kissing the hands of your excellencies,

FERMIN JAUDENES,
Governor-General and Captain-General of the Philippines.

HEADQUARTERS U. S. LAND AND NAVAL FORCES,
Manila Bay, Philippine Islands, August 9, 1898.

The Governor-General and Captain-General of the Philippines.

SIR: The inevitable suffering in store for the wounded, sick, women, and children, in the event that it becomes our duty to reduce the defenses of the walled

town in which they are gathered, will, we feel assured, appeal successfully to the sympathies of a general capable of making the determined and prolonged resistance, which your excellency has exhibited after the loss of your naval forces and without hope of succor.

We therefore submit, without prejudice to the high sentiments of honor and duty which your excellency entertains, that, surrounded on every side as you are by a constantly increasing force, with a powerful fleet in your front, and deprived of all prospect of reenforcement and assistance, a most useless sacrifice of life would result in the event of an attack, and therefore every consideration of humanity makes it imperative that you should not subject your city to the horrors of a bombardment. Accordingly, we demand the surrender of the city of Manila and the Spanish forces under your command.

Very respectfully,

W. MERRITT,
*Major-General, United States Army,
Commanding Land Forces of the United States.*

GEORGE DEWEY,
*Rear-Admiral, United States Navy,
Commanding United States Naval Force on Asiatic Station.*

HEADQUARTERS U. S. LAND AND NAVAL FORCES,
Manila Bay, August 10, 1898.

The Governor-General and Captain-General of the Philippine Islands.

SIR: We have the honor to acknowledge the communication of your excellency of the 8th instant, in which you suggest your desire to consult your Government in regard to the exceptional circumstances in your city, provided the time to do so can be granted by us.

In reply we respectfully inform your excellency that we decline to grant the time requested.

Very respectfully,

WESLEY MERRITT,
Major-General, U. S. A., Commanding U. S. Land Forces.

GEORGE DEWEY,
*Rear-Admiral, U. S. Navy,
Commanding U. S. Naval Forces, Asiatic Station*

[Translation.]

MANILA, August 9, 1898.

The Governor-General and Captain-General of the Philippines to the Major-General of the Army and the Rear-Admiral of the Navy, commanding, respectively, the Military and Naval Forces of the United States.

GENTLEMEN: Having received an intimation from your excellencies that, in obedience to sentiments of humanity to which you appeal and which I share, I should surrender this city and the forces under my orders, I have assembled the council of defense, which declares that your request can not be granted; but taking account of the most exceptional circumstances existing in this city, which your excellencies recite and which I unfortunately have to admit, I would consult my Government, if your excellencies will grant the time strictly necessary for this communication, by way of Hongkong.

Very respectfully,

FERMIN JAUDENES,
Governor-General and Captain-General of the Philippines.

The undersigned, having been appointed a commission to determine the details of the capitulation of the city and defenses of Manila and its suburbs and the Spanish forces stationed therein, in accordance with the agreement entered into the previous day by Maj. Gen. Wesley Merritt, United States Army, American commander in chief in the Philippines, and His Excellency Don Fermin Jaudenes, acting general in chief of the Spanish army in the Philippines, have agreed upon the following:

1. The Spanish troops, European and native, capitulate with the city and its defenses, with all the honors of war, depositing their arms in the places designated by the authorities of the United States, and remaining in the quarters designated and under the orders of their officers, and subject to the control of the aforesaid United States authorities, until the conclusion of a treaty of peace between the two belligerent nations.

All persons included in the capitulation remain at liberty, the officers remaining in their respective homes, which shall be respected as long as they observe the regulations prescribed for their government and the laws in force.

2. Officers shall retain their side arms, horses, and private property.

3. All public horses and public property of all kinds shall be turned over to staff officers designated by the United States.

4. Complete returns in duplicate of men by organizations and full lists of public property and stores shall be rendered to the United States within ten days from this date.

5. All questions relating to the repatriation of officers and men of the Spanish forces and of their families, and of the expenses which said repatriation may occasion, shall be referred to the Government of the United States at Washington. Spanish families may leave Manila at any time convenient to them.

The return of the arms surrendered by the Spanish forces shall take place when they evacuate the city or when the American Army evacuates.

6. Officers and men included in the capitulation shall be supplied by the United States, according to their rank, with rations and necessary aid as though they were prisoners of war, until the conclusion of a treaty of peace between the United States and Spain.

All the funds in the Spanish treasury and all other public funds shall be turned over to the authorities of the United States.

7. This city, its inhabitants, its churches and religious worship, its educational establishments, and its private property of all descriptions are placed under the special safeguard of the faith and honor of the American Army.

F. V. GREENE,

Brigadier-General of Volunteers, United States Army.

B. P. LAMBERTON,

Captain, United States Navy.

CHARLES A. WHITTIER,

Lieutenant-Colonel and Inspector-General.

E. H. CROWDER,

Lieutenant-Colonel and Judge-Advocate.

NICHOLAS DE LA PETRA,

Auditor General Excmo.

CARLOS,

Coronel de Ingenieros.

JOSE,

Coronel de Estado Mayor.

HEADQUARTERS DEPARTMENT OF THE PACIFIC,

August 14, 1898.

To the people of the Philippines:

I. War has existed between the United States and Spain since April 21 of this year. Since that date you have witnessed the destruction by an American fleet of the Spanish naval power in these islands, the fall of the principal city, Manila, and its defenses, and the surrender of the Spanish army of occupation to the forces of the United States.

II. The commander of the United States forces now in possession has instructions from his Government to assure the people that he has not come to wage war upon them, nor upon any part or faction among them, but to protect them in their homes, in their employments, and in their personal and religious rights. All persons who, by active aid or honest submission, cooperate with the United States in its efforts to give effect to this beneficent purpose will receive the reward of its support and protection.

III. The government established among you by the United States is a government of military occupation; and for the present it is ordered that the municipal laws, such as affect private rights of persons and property, regulate local institutions, and provide for the punishment of crime shall be considered as continuing in force, so far as compatible with the purposes of military government, and that they be administered through the ordinary tribunals substantially as before occupation, but by officials appointed by the Government of occupation.

IV. A provost-marshal-general will be appointed for the city of Manila and its outlying districts. This territory will be divided into subdistricts, and there will be assigned to each a deputy provost-marshal.

The duties of the provost-marshal-general and his deputies will be set forth in detail in future orders. In a general way they are charged with the duty of making arrests of military as well as civil offenders, sending such of the former class as are

triable by courts-martial to their proper commands, with statements of their offenses and names of witnesses, and detaining in custody all other offenders for trial by military commission, provost courts, or native criminal courts, in accordance with law and the instructions hereafter to be issued.

V. The port of Manila, and all other ports and places in the Philippines which may be in the actual possession of our land and naval forces will be open, while our military occupation may continue, to the commerce of all neutral nations as well as our own, in articles not contraband of war, and upon payment of the prescribed rates of duty which may be in force at the time of the importation.

VI. All churches and places devoted to religious worship and to the arts and sciences, all educational institutions, libraries, scientific collections, and museums are, so far as possible, to be protected; and all destruction or intentional defacement of such places or property, of historical monuments, archives, or works of science and art, is prohibited, save when required by urgent military necessity. Severe punishment will be meted out for all violations of this regulation.

The custodians of all property of the character mentioned in this section will make prompt returns thereof to these headquarters, stating character and location, and embodying such recommendations as they may think proper for the full protection of the properties under their care and custody, that proper orders may issue enjoining the cooperation of both military and civil authorities in securing such protection.

VII. The commanding general, in announcing the establishment of military government and in entering upon his duty as military governor in pursuance of his appointment as such by the Government of the United States, desires to assure the people that so long as they preserve the peace and perform their duties toward the representatives of the United States they will not be disturbed in their persons and property, except in so far as may be found necessary for the good of the service of the United States and the benefit of the people of the Philippines.

WESLEY MERRITT,
Major-General, United States Army, Commanding.

REPORT OF MAJOR-GENERAL SHAFTER, COMMANDING THE TROOPS IN CUBA.

WASHINGTON, D. C., *September 13, 1898.*

ADJUTANT-GENERAL OF THE ARMY,

Washington, D. C.

SIR: I have the honor to submit the following report of the campaign which terminated in the fall of Santiago de Cuba, and the adjacent territory, and the establishment of the military government therein:

The expedition was undertaken in compliance with telegraphic instructions of May 30, 1898, from Headquarters of the Army, in which it was stated "Admiral Schley reports that two cruisers and two torpedo boats have been seen in the harbor of Santiago. Go with your force to capture garrison at Santiago, and assist in capturing harbor and fleet."

On this date there were a large number of transports in Port Tampa Bay, which had been collected for the purpose of an expedition which it had been previously contemplated I should command, and for such other emergencies as might arise. Orders were immediately given for loading aboard those transports the necessary subsistence and quartermaster's supplies, and for the embarkation of the authorized number of troops and their material. General Orders, No. 5, from these headquarters, indicate the organizations it was at first proposed to take. The order is as follows:

GENERAL ORDERS, }
No. 5. }

HEADQUARTERS FIFTH ARMY CORPS,
Tampa, Fla., May 31, 1898.

The following troops will hold themselves in readiness to move immediately on board transports upon notification from these headquarters:

1. The Fifth Army Corps.
2. The Battalion of Engineers.
3. The detachment of the Signal Corps.
4. Five squadrons of cavalry, to be selected by the commanding general of the cavalry division, in accordance with instructions previously given.

5. Four batteries of light artillery, to be commanded by a major to be selected by the commanding officer of the Light Artillery Brigade.

6. Two batteries of heavy artillery, to be selected by the commanding officer of the siege artillery battalion, with eight siege guns and eight field mortars.

7. The Battalion of Engineers, the Infantry and Cavalry, will be supplied with 500 rounds of ammunition per man.

8. All troops will carry, in addition to the fourteen days' field rations now on hand, ten days' travel rations.

9. The minimum allowance of tentage and baggage, as prescribed in General Orders 54, Adjutant-General's Office, current series, will be taken.

10. In addition to the rations specified in paragraph 8 of this order, the Chief Commissary will provide sixty days' field rations for the entire command.

11. All recruits and extra baggage, the latter to be stored, carefully piled and covered, will be left in camp, in charge of a commissioned officer, to be selected by the regimental commander. Where there are no recruits available, the necessary guard only will be left.

12. Travel rations will be drawn, at once, by the several commands, as indicated in paragraph 8.

By command of Major-General Shafter:

E. J. McCLEARNAND,
Assistant Adjutant-General.

This order was afterwards changed to include 12 squadrons of cavalry, all of which were dismounted, because of lack of transportation for the animals, and because it was believed from the best sources of information obtainable that mounted cavalry could not operate efficiently in the neighborhood of Santiago. This was found subsequently to be correct.

The facilities at Tampa, and Port Tampa, for embarking the troops and the large amount of supplies required were inadequate, and with the utmost effort it was not possible to accomplish this work as quickly as I hoped and desired.

On the evening of June 7, I received orders to sail without delay, but not with less than 10,000 men.

The orders referred to caused one division composed of volunteer troops—commanded by Brigadier-General Snyder, and which it had been intended to include in my command—to be left behind. I was joined, however, by Brigadier-General Bates, who had already arrived on transports from Mobile, Ala., with the Third and Twentieth Infantry, and one squadron of the Second Cavalry, with their horses—the latter being the only mounted troops in my command.

After some of the transports had already reached the lower bay, telegraphic instructions were received from the Honorable Secretary of War directing that the sailing of the expedition be delayed waiting further orders. This delay was occasioned by the Navy reporting that a Spanish war vessel had been sighted in the Nicholas Channel. The ships in the lower bay were immediately recalled. On the next day, in compliance with instructions from the Adjutant-General of the Army, the necessary steps were taken to increase the command to the full capacity of the transports, and the expedition sailed on June 14 with 815 officers and 16,072 enlisted men.

The passage to Santiago was generally smooth and uneventful. The health of the command remained remarkably good, notwithstanding the fact that the conveniences on many of the transports, in the nature of sleeping accommodations, space for exercise, closet accommodations, etc., were not all that could have been desired. While commenting upon this subject, it is appropriate to add that the opinion was general throughout the army that the travel ration should include tomatoes, beginning with the first day, and that a small quantity of canned fruit would prove to be a most welcome addition while traveling at sea in the tropics; if the future policy of our Government requires much transportation for the military forces by sea, definite arrangements should be determined upon to provide the necessary hammock accommodations for sleeping. Hammocks interfere immeasurably less than bunks with the proper ventilation of the ships, and during the day can be easily removed, thus greatly increasing space for exercise; moreover, they greatly diminish the danger of fire.

While passing along the north coast of Cuba, one of the two barges we had in tow broke away during the night, and was not recovered. This loss proved to be very serious, for it delayed and embarrassed the disembarkation of the army. On the morning of June 20, we arrived off Guantanamo Bay, and about noon reached the vicinity of Santiago, where Admiral Sampson came on board my headquarter transport. It was arranged between us to visit in the afternoon the Cuban general, Garcia, at Aserraderos, about 18 miles to the west of the Morro. During the interview General Garcia offered the services of his troops, comprising about 4,000 men, in the vicinity of Aserraderos, and about 500 under General Castillo at the little town of Cujababo, a few miles east of Daiquiri. I accepted his offer, impressing it upon him that I could exercise no military control over him except such as he would concede, and as long as he served under me I would furnish him rations and ammunition.

Ever since the receipt of my orders I had made a study of the terrain surrounding Santiago, gathering information mainly from former residents of the city, several of whom were on the transports with me. At this interview all the possible points of attack were for the last time carefully weighed, and then, for the information and guidance of Admiral Sampson and General Garcia, I outlined the plan of campaign, which was as follows:

With the assistance of the small boats of the navy, the disembarkation was to commence on the morning of the 22d at Daiquiri. On the 21st 500 insurgent troops were to be transferred from Aserraderos to Cujababo, increasing the force already there to 1,000 men. This force under General Castillo was to attack the Spanish force at Daiquiri in the rear at the time of disembarkation. This movement was successfully made. To mislead the enemy as to the real point of our intended landing, I requested General Garcia to send a small force (about 500 men), under General Rabi, to attack the little town of Cabanas, situated on the coast a few miles to the west of the entrance to Santiago Harbor, and where it was reported the enemy had several hundred men intrenched, and from which a trail leads around the west side of the bay to Santiago.

I also requested Admiral Sampson to send several of his war ships, with a number of my transports, opposite this town for the purpose of making a show of disembarking there. In addition I asked the admiral to cause a bombardment to be made at Cabañas, and also at the forts around the Morro, and at the towns of Aguadores, Siboney, and Daiquiri. The troops under General Garcia remaining at Aserraderos were to be transferred to Daiquiri or Siboney, on the 24th. This was successfully accomplished at Siboney.

These movements committed me to approaching Santiago from the east over a narrow road, at first in some places not better than a trail, running from Daiquiri through Siboney and Sevilla, and making attack from that quarter. This, in my judgment, was the only feasible plan, and subsequent information and results confirmed my judgment.

On the morning of the 22d the army commenced to disembark at Daiquiri. The following general order indicates the manner in which the troops left the transports, and the amount of supplies carried immediately with them:

GENERAL ORDERS, }
No. 18. }

HEADQUARTERS FIFTH ARMY CORPS,
ON BOARD U. S. S. SEGURANCA, AT SEA, June 20, 1898.

EXTRACT.

1. Under instructions to be communicated to the proper commanders, troops will disembark in the following order:

First. The Second Division, Fifth Corps (Lawton's). The Gatling gun detachment will accompany this division.

Second. General Bates's brigade. This brigade will form as a reserve to the Second Division, Fifth Corps.

Third. The dismounted cavalry division (Wheeler's).

Fourth. The First Division, Fifth Corps (Kent's).

Fifth. The squadron of the Second Cavalry (Rafferty's).

attack at this point was to be delayed until Lawton's guns were heard at El Caney and his infantry fire showed he had become well engaged.

The remainder of the afternoon and night was devoted to cutting out and repairing the roads and to other necessary preparations for battle. These preparations were far from what I desired them to be, but we were in a sickly climate; our supplies had to be brought forward by a narrow wagon road which the rains might at any time render impassable; fear was entertained that a storm might drive the vessels containing our stores to sea, thus separating us from our base of supplies, and, lastly, it was reported that General Pando, with 8,000 reinforcements for the enemy, was en route from Manzanillo, and might be expected in a few days. Under those conditions I determined to give battle without delay.

Early on the morning of July 1 Lawton was in position around El Caney, Chaffee's brigade on the right, across the Guantanamo road, Miles's brigade in the center, and Ludlow's on the left. The duty of cutting off the enemy's retreat, along the Santiago road, was assigned to the latter brigade. The artillery opened on the town at 6.15 a. m. The battle here soon became general, and was hotly contested. The enemy's position was naturally strong, and was rendered more so by blockhouses, a stone fort, and intrenchments cut in solid rock, and the loopholing of a solidly built stone church. The opposition offered by the enemy was greater than had been anticipated, and prevented Lawton from joining the right of the main line during the day as had been intended. After the battle had continued for some time, Bates's brigade of two regiments reached my headquarters from Siboney. I directed him to move near El Caney to give assistance if necessary. He did so and was put in position between Miles and Chaffee. The battle continued with varying intensity during most of the day, and until the place was carried by assault about 4.30 p. m. As the Spaniards endeavored to retreat along the Santiago road, Ludlow's position enabled him to do very effective work, and to practically cut off all retreat in that direction.

After the battle at El Caney was well opened, and the sound of the small arms fire caused us to believe that Lawton was driving the enemy before him, I directed Grimes's battery to open fire from the heights of El Pozo on the San Juan blockhouse, which could be seen situated in the enemy's intrenchments extending along the crest of San Juan hill. This fire was effective, and the enemy could be seen running away from the vicinity of the blockhouse. The artillery fire from El Pozo was soon returned by the enemy's artillery. They evidently had the range of this hill, and their first shells killed and wounded several men. As the Spaniards used smokeless powder it was very difficult to locate the positions of their pieces, while, on the contrary, the smoke caused by our black powder plainly indicated the position of our battery.

At this time the cavalry division, under General Sumner, which was lying concealed in the general vicinity of El Pozo House, was ordered forward, with directions to cross the San Juan River and deploy to the right on the Santiago side, while Kent's division was to follow closely in its rear and deploy to the left.

These troops moved forward in compliance with orders, but the road was so narrow as to render it impracticable to retain the column of fours formation at all points, while the undergrowth on either side was so dense as to preclude the possibility of deploying skirmishers. It naturally resulted that the progress made was slow, and the long-range rifles of the enemy's infantry killed and wounded a number of our men while marching along this road, and before there was any opportunity to return this fire. At this time Generals Kent and Sumner were ordered to push forward with all possible haste, and place their troops in position to engage the enemy. General Kent, with this end in view, forced the head of his column alongside of the cavalry column as far as the narrow trail permitted, and thus hurried his arrival at the San Juan, and the formation beyond that stream. A few hundred yards before reaching the San Juan, the road forks, a fact that was discovered by Lieutenant-Colonel Derby of my staff, who had

approached well to the front in a war balloon. This information he furnished to the troops, resulting in Sumner moving on the right-hand road, while Kent was enabled to utilize the road to the left.

General Wheeler, the permanent commander of the cavalry division, who had been ill, came forward during the morning, and later returned to duty, and rendered most gallant and efficient service during the remainder of the day.

After crossing the stream, the cavalry moved to the right with a view of connecting with Lawton's left when he should come up, and with their left resting near the Santiago road.

In the meanwhile Kent's division, with the exception of two regiments of Hawkins's brigade, being thus uncovered, moved rapidly to the front from the forks previously mentioned in the road, utilizing both trails, but more especially the one to the left, and crossing the creek, formed for attack in the front of San Juan Hill. During this formation the Third Brigade suffered severely. While personally superintending this movement, its gallant commander, Colonel Wikoff, was killed. The command of the brigade then devolved upon Lieutenant-Colonel Worth, Thirteenth Infantry, who was soon severely wounded, and next upon Lieutenant-Colonel Liscum, Twenty-fourth Infantry, who, five minutes later, also fell under the terrible fire of the enemy, and the command of the brigade then devolved upon Lieutenant-Colonel Ewers, Ninth Infantry.

While the formation just described was taking place, General Kent took measures to hurry forward his rear brigade. The Tenth and Second Infantry were ordered to follow Wikoff's brigade, while the Twenty-first was sent on the right-hand road to support the First Brigade, under General Hawkins, who had crossed the stream and formed on the right of the division. The Second and Tenth Infantry, Col. E. P. Pearson commanding, moved forward in good order on the left of the division, passed over a green knoll, and drove the enemy back toward his trenches.

After completing their formation, under a destructive fire, and advancing a short distance, both divisions found in their front a wide bottom in which had been placed a barbed-wire entanglement, and beyond which there was a high hill, along the crest of which the enemy was strongly posted. Nothing daunted, these gallant men pushed on to drive the enemy from his chosen position, both divisions losing heavily. In this assault Colonel Hamilton, Lieutenants Smith and Shipp were killed, and Colonel Carroll, Lieutenants Thayer and Myer, all in the cavalry, were wounded.

Great credit is due to Brig. Gen. H. S. Hawkins, who, placing himself between his regiments, urged them on by voice and bugle calls to the attack so brilliantly executed.

In this fierce encounter, words fail to do justice to the gallant regimental commanders and their heroic men, for while the generals indicated the formations and the points of attack, it was, after all, the intrepid bravery of the subordinate officers and men that planted our colors on the crest of San Juan Hill, and drove the enemy from his trenches and blockhouses, thus gaining a position which sealed the fate of Santiago.

In the action on this part of the field, most efficient service was rendered by Lieut. John H. Parker, Thirteenth Infantry, and the Gatling-gun detachment under his command. The fighting continued at intervals until nightfall, but our men held resolutely to the positions gained at the cost of so much blood and toil.

I am greatly indebted to General Wheeler, who, as previously stated, returned from the sick list to duty during the afternoon. His cheerfulness and aggressiveness made itself felt on this part of the battlefield, and the information he furnished to me at various stages of the battle proved to be most useful.

My own health was impaired by overexertion in the sun and intense heat of the day before, which prevented me from participating as actively in the battle as I desired, but from a high hill near my headquarters I had a general view of the battlefield,

extending from El Caney on the right to the left of our lines on San Juan Hill. My staff officers were stationed at various points on the field, rendering frequent reports, and through them, by the means of orderlies and the telephone, I was enabled to transmit my orders. During the afternoon I visited the position of Grimes's battery on the heights of El Pozo and saw Sumner and Kent in firm possession of San Juan Hill, which I directed should be intrenched during the night. My engineer officer, Lieutenant-Colonel Derby, collected and sent forward the necessary tools, and during the night trenches of very considerable strength were constructed.

During the afternoon Major Dillenback, by my order, brought forward the two remaining batteries of his battalion and put them in position at El Pozo, to the left of Grimes. Later in the afternoon all three batteries were moved forward to positions near the firing line; but the nature of the country and the intensity of the enemy's small-arms fire were such that no substantial results were gained by our artillery in the new positions. The batteries were intrenched during the night. General Duffield, with the Thirty-third Michigan, attacked Aguadores as ordered, but was unable to accomplish more than to detain the Spaniards in that vicinity.

After the brilliant and important victory gained at El Caney, Lawton started his tired troops, who had been fighting all day and marching much of the night before, to connect with the right of the cavalry division. Night came on before this movement could be accomplished. In the darkness the enemy's pickets were encountered, and the division commander, being uncertain of the ground and as to what might be in his front, halted his command and reported the situation to me. This information was received about 12.30 a. m., and I directed General Lawton to return by my headquarters and the El Pozo house, as the only certain way of gaining his new position.

This was done, and the division took position on the right of the cavalry early next morning, Chaffee's brigade arriving first, about half-past 7, and the other brigades before noon.

On the night of July 1, I ordered General Duffield, at Siboney, to send forward the Thirty-fourth Michigan and the Ninth Massachusetts, both of which had just arrived from the United States. These regiments reached the front the next morning. The Thirty-fourth was placed in rear of Kent, and the Ninth was assigned to Bates, who placed it on his left.

Soon after daylight, on July 2, the enemy opened battle, but because of the intrenchments made during the night, the approach of Lawton's division, and the presence of Bates's brigade, which had taken position during the night on Kent's left, little apprehension was felt as to our ability to repel the Spaniards.

It is proper here to state that General Bates and his brigade had performed most arduous and efficient service, having marched much of the night of June 30-July 1 and a good part of the latter day, during which he also participated in the battle of El Caney, after which he proceeded, by way of El Pozo, to the left of the line at San Juan, reaching his new position about midnight.

All day on the 2d the battle raged with more or less fury, but such of our troops as were in position at daylight held their ground, and Lawton gained a strong and commanding position on the right.

About 10 p. m. the enemy made a vigorous assault to break through my lines, but he was repulsed at all points.

On the morning of the 3d the battle was renewed, but the enemy seemed to have expended his energy in the assault of the previous night, and the firing along the lines was desultory until stopped by my sending the following letter within the Spanish lines:

HEADQUARTERS UNITED FORCES,
Near San Juan River, July 3, 1898—8.30 a. m.

THE COMMANDING GENERAL OF THE SPANISH FORCES,
Santiago de Cuba.

SIR: I shall be obliged, unless you surrender, to shell Santiago de Cuba. Please

inform the citizens of foreign countries, and all women and children, that they should leave the city before 10 o'clock to-morrow morning.

Very respectfully, your obedient servant,

WILLIAM R. SHAFTER,
Major-General, U. S. Volunteers.

To this letter I received the following reply:

SANTIAGO DE CUBA, *July 3, 1898.*

His Excellency the GENERAL COMMANDING FORCES OF THE UNITED STATES,
Near San Juan River.

SIR: I have the honor to reply to your communication of to-day, written at 8.30 a. m. and received at 1 p. m., demanding the surrender of this city, or in the contrary case announcing to me that you will bombard this city, and that I advise the foreigners, women, and children, that they must leave the city before 10 o'clock to-morrow morning.

It is my duty to say to you that this city will not surrender, and that I will inform the foreign consuls and inhabitants of the contents of your message.

Very respectfully,

JOSÉ TORAL,
Commander in Chief, Fourth Corps.

Several of the foreign consuls came into my lines and asked that the time given for them, the women and children, to depart from the city be extended until 10 o'clock on July 5. This induced me to write a second letter, as follows:

SANTIAGO DE CUBA, *July 3, 1898.*

The COMMANDING GENERAL, SPANISH FORCES,
Santiago de Cuba.

SIR: In consideration of a request of the consular officers in your city for further delay in carrying out my intentions to fire on the city, and in the interests of the poor women and children, who will suffer very greatly by their hasty and enforced departure from the city, I have the honor to announce that I will delay such action solely in their interests until noon of the 5th, provided that during the interim your forces make no demonstration whatever upon those of my own.

I am, with great respect, your obedient servant,

WILLIAM R. SHAFTER,
Major-General, U. S. Volunteers.

My first message went in under a flag of truce at 12.30 p. m. I was of the opinion that the Spaniards would surrender if given a little time, and I thought this result would be hastened if the men of their army could be made to understand they would be well treated as prisoners of war. Acting upon this presumption, I determined to offer to return all the wounded Spanish officers at El Caney who were able to bear transportation, and who were willing to give their paroles not to serve against the forces of the United States until regularly exchanged. This offer was made and accepted. These officers, as well as several of the wounded Spanish privates, 27 in all, were sent to their lines under the escort of some of our mounted cavalry. Our troops were received with honors, and I have every reason to believe the return of the Spanish prisoners produced a good impression on their comrades.

The cessation of firing about noon on the 3d practically terminated the battle of Santiago; all that occurred after this time may properly be treated under the head of the siege which followed. After deducting the detachments retained at Siboney and Daiquiri to render those depots secure from attack, organizations held to protect our flanks, others acting as escorts and guards to light batteries, the members of the hospital corps, guards left in charge of blanket rolls which the intense heat caused the men to cast aside before entering battle, orderlies, etc., it is doubtful if we had more than 12,000 men on the firing line on July 1, when the battle was fiercest, and when the important and strong positions of El Caney and San Juan were captured. A few Cubans assisted in the attack at El Caney, and fought valiantly, but their numbers were too small to materially change the strength, as indicated above. The enemy confronted us with numbers about equal to our own. They fought obstinately in strong and intrenched positions, and the results obtained clearly indicate the intrepid gallantry of the company officers and men and the benefits derived from the careful training and instruction given in the company in recent years in rifle practice and other battle exercises. Our losses in these battles

were 22 officers and 208 men killed and 81 officers and 1,203 men wounded; missing, 79. The missing, with few exceptions, reported later.

The arrival of General Escario on the night of July 2, and his entrance into the city was not anticipated, for, although it was known, as previously stated, that General Pando had left Manzanillo with reinforcements for the garrison of Santiago, it was not believed his troops could arrive so soon. General Garcia, with between 4,000 and 5,000 Cubans, was intrusted with the duty of watching for and intercepting the reinforcement expected. This, however, he failed to do, and Escario passed into the city along on my extreme right and near the bay. Up to this time I had been unable to complete the investment of the town with my own men, but to prevent any more reinforcements coming in, or the enemy escaping, I extended my lines as rapidly as possible to the extreme right, and completed the investment of the place, leaving General Garcia's forces in the rear of my right flank to scout the country for any approaching Spanish reinforcements, a duty which his forces were very competent to perform.

It had been reported that 8,000 Spanish troops had left Holguin for Santiago. It was also known that there was a considerable force at San Luis, 20 miles to the north.

In the battle of Santiago the Spanish navy endeavored to shell our troops on the extreme right, but the latter were concealed by the inequalities of the ground, and the shells did little, if any, harm. Their naval forces also assisted in the trenches, having 1,000 on shore, and I am informed they sustained considerable loss; among others, Admiral Cervera's chief of staff was killed. Being convinced the city would fall, Admiral Cervera determined to put to sea, informing the French consul it was better to die fighting than to sink his ships. The news of the great naval victory which followed was enthusiastically received by the army.

The information of our naval victory was transmitted under flag of truce to the Spanish commander in Santiago on July 4, and the suggestion again made that he surrender to save needless effusion of blood.

On the same date I informed Admiral Sampson that if he would force his way into the harbor the city would surrender without any further sacrifice of life. Commodore Watson replied that Admiral Sampson was temporarily absent, but that in his (Watson's) opinion the navy should not enter the harbor.

In the meanwhile, letters passing between General Toral and myself caused the cessation of hostilities to continue. Each army, however, continued to strengthen its intrenchments. I was still of the opinion the Spaniards would surrender without much more fighting, and on July 6 called General Toral's attention to the changed conditions, and at his request gave him time to consult his home Government. This he did, asking that the British consul, with the employees of the cable company, be permitted to return from El Caney to the city. This I granted.

The strength of the enemy's position was such I did not wish to assault if it could be avoided.

An examination of the enemy's works made after the surrender fully justified the wisdom of the course adopted. The intrenchments could only have been carried with very great loss of life, probably with not less than 3,000 killed and wounded.

On July 8 General Toral offered to march out of the city with arms and baggage, provided he would not be molested before reaching Holguin, and to surrender to the American forces the territory then occupied by him. I replied that while I would submit his proposition to my home Government, I did not think it would be accepted.

In the meanwhile arrangements were made with Admiral Sampson that when the army again engaged the enemy the navy would assist by shelling the city from ships stationed off Aguadores, dropping a shell every few minutes.

On July 10 the First Illinois and the First District of Columbia arrived and were placed on the line to the right of the cavalry division. This enabled me to push Lawton farther to the right and to practically command the Cobra road.

On the afternoon of the date last mentioned the truce was broken off at 4 p. m., and I determined to open with four batteries of artillery, and went forward in person to the trenches to give the necessary orders, but the enemy anticipated us by opening fire with his artillery a few minutes after the hour stated. His batteries were apparently silenced before night, while ours continued playing upon his trenches until dark. During this firing the Navy fired from Aguadores, most of the shells falling in the city. There was also some small-arms firing. On this afternoon and the next morning we lost Capt. Charles W. Rowell, Second Infantry, and one man killed, and Lieutenant Lutz, Second Infantry, and ten men wounded.

On the morning of July 11 the bombardment by the Navy and my field guns was renewed and continued until nearly noon, and on the same day I reported to the Adjutant-General of the Army that the right of Ludlow's brigade of Lawton's division rested on the bay. Thus our hold upon the enemy was complete.

At 2 p. m. on this date, the 11th, the surrender of the city was again demanded. The firing ceased and was not again renewed. By this date the sickness in the Army was increasing very rapidly as a result of exposure in the trenches to the intense heat of the sun and the heavy rains. Moreover the dews in Cuba are almost equal to rains. The weakness of the troops was becoming so apparent I was anxious to bring the siege to an end, but, in common with most of the officers of the Army, I did not think an assault would be justifiable, especially as the enemy seemed to be acting in good faith in their preliminary propositions to surrender.

On July 11, I wrote General Toral as follows:

"With the largely increased forces which have come to me, and the fact that I have your line of retreat securely in my hands, the time seems fitting that I should again demand of your excellency the surrender of Santiago, and of your excellency's army. I am authorized to state that should your excellency so desire the Government of the United States will transport the entire command of your excellency to Spain."

General Toral replied that he had communicated my proposition to his general in chief, General Blanco.

July 12, I informed the Spanish commander that Major-General Miles, commander in chief of the American Army, had just arrived in my camp, and requested him to grant us a personal interview on the following day. He replied he would be pleased to meet us. The interview took place on the 13th, and I informed him his surrender only could be considered, and that as he was without hope of escape he had no right to continue the fight.

On the 14th another interview took place, during which General Toral agreed to surrender upon the basis of his army, the Fourth Army Corps, being returned to Spain, the capitulation embracing all of eastern Cuba east of a line passing from Ameraderos on the south, to Sagua de Tanamo on the north, via Palma Soriano. It was agreed commissioners should meet during the afternoon to definitely arrange the terms of surrender, and I appointed Major Generals Wheeler and Lawton and Lieutenant Miley to represent the United States.

The Spanish commissioners raised many points, and were especially desirous of retaining their arms. The discussion lasted until late at night, and was renewed at 9.30 o'clock next morning. The terms of surrender finally agreed upon included about 12,000 Spanish troops in the city and as many more in the surrendered district.

It was arranged the formal surrender should take place between the lines on the morning of July 17, each army being represented by 100 armed men. At the time appointed I appeared at the place agreed upon with my general officers, staff, and 100 troopers of the Second Cavalry under Captain Brett. General Toral also arrived with a number of his officers and 100 infantry. We met midway between the representatives of our two armies, and the Spanish commander formally consummated the surrender of the city and the 24,000 troops in Santiago and the surrendered district.

After this ceremony I entered the city with my staff and escort, and at 12 o'clock

noon the American flag was raised over the governor's palace with appropriate ceremonies.

The Ninth Infantry immediately took possession of the city, and perfect order was maintained. The surrender included a small gunboat and about 200 seamen, together with five merchant ships in the harbor. One of these vessels, the *Mexico*, had been used as a war vessel and had four guns mounted on it.

In taking charge of the civil government all officials who were willing to serve were retained in office, and the established order of government was preserved as far as consistent with the necessities of military rule.

I soon found the number of officials was excessive, and I greatly reduced the list, and some departments were entirely abolished.

A collector of customs, Mr. Donaldson, arrived soon after the surrender, and due to his energy and efficiency this department was soon working satisfactorily. The total receipts had, up to my departure, been \$102,000.

On August 4, I received orders to begin the embarkation of my command and ship them to Montauk Point, Long Island, N. Y. The movement continued without interruption until August 25, when I sailed for Montauk with the last troops in my command, turning over the command of the district to Major-General Lawton.

Before closing my report I wish to dwell upon the natural obstacles I had to encounter, and which no foresight could have overcome or obviate. The rocky and precipitous coast afforded no sheltered landing places, the roads were mere bridle paths, the effect of the tropical sun and rains upon unacclimated troops was deadly, and a dread of strange and unknown diseases had its effect on the army.

At Daiquiri the landing of the troops and stores was made at a small wooden wharf, which the Spaniards tried to burn, but unsuccessfully, and the animals were pushed into the water and guided to a sandy beach about 200 yards in extent. At Siboney the landing was made on the beach and at a small wharf erected by the engineers.

I had neither the time nor the men to spare to construct permanent wharves.

In spite of the fact that I had nearly 1,000 men continuously at work on the roads, they were at times impassable for wagons.

The San Juan and Aguadores Rivers would often suddenly rise so as to prevent the passage of wagons, and then the eight pack trains with the command had to be depended upon for the victualing of my army, as well as the 20,000 refugees, who could not, in the interests of humanity, be left to starve while we had rations.

Often for days nothing could be moved except on pack trains.

After the great physical strain and exposure of July 1 and 2, the malarial and other fevers began to rapidly advance throughout the command, and on July 4 the yellow fever appeared at Siboney. Though efforts were made to keep this fact from the army, it soon became known.

The supply of quartermaster and commissary stores during the campaign was abundant, and, notwithstanding the difficulties in landing and transporting the rations, the troops on the firing line were at all times supplied with its coarser components, namely, of bread, meat, sugar, and coffee.

There was no lack of transportation, for at not a time up to the surrender could all the wagons I had be used.

In reference to the sick and wounded I have to say that they received every attention that it was possible to give them. The medical officers, without exception, worked night and day to alleviate the suffering, which was no greater than invariably accompanies a campaign. It would have been better if we had more ambulances, but as many were taken as was thought necessary, judging from previous campaigns.

The discipline of the command was superb, and I wish to invite attention to the fact that not an officer was brought to trial by court-martial, and, as far as I know, no enlisted man. This speaks volumes for an army of this size, and in a campaign of such duration.

In conclusion, I desire to express to the members of my staff my thanks for their efficient performance of all the duties required of them and the good judgment and bravery displayed on all occasions when demanded.

I submit the following recommendations for promotion, which I earnestly desire to see made. It is very little reward to give them for their devotion and fearless exposure of their lives in their country's cause.

E. J. McClernand, lieutenant-colonel and adjutant-general, U. S. Volunteers, to be brevetted colonel for gallantry in the face of the enemy on the 1st and 2d of July, and to be brevetted brigadier-general for faithful and meritorious service throughout the campaign.

George McC. Derby, lieutenant-colonel of engineers, U. S. Volunteers, to be brevetted colonel for hazardous service on July 1 and 2 in reconnoitering the enemy's lines, and to be brevetted brigadier-general for hazardous and meritorious service in ascending under a hot fire in a war balloon on July 1, thus gaining valuable information.

J. D. Miley, lieutenant-colonel and inspector-general, U. S. Volunteers, to be brevetted colonel for conspicuous gallantry in the battle of San Juan on July 1, and to be brevetted brigadier-general for faithful and meritorious service throughout the campaign.

R. H. Noble, major and adjutant-general, U. S. Volunteers, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

J. J. Astor, lieutenant-colonel and inspector-general, U. S. Volunteers, to be brevetted colonel for faithful and meritorious service during the campaign.

B. F. Pope, lieutenant-colonel and surgeon, U. S. Volunteers, to be brevetted colonel for faithful and meritorious service during the campaign.

Maj. S. W. Groesbeck, judge-advocate, U. S. Army, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

Charles F. Humphrey, lieutenant-colonel, Quartermaster's Department, to be brevetted brigadier-general for faithful and meritorious service throughout the campaign.

John F. Weston, colonel and assistant commissary-general of subsistence, chief commissary, to be brevetted brigadier-general for faithful and meritorious service throughout the campaign.

C. G. Starr, major and inspector-general, U. S. Volunteers, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

Leon S. Roudiez, major and quartermaster, U. S. Volunteers, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

H. J. Gallagher, major and commissary of subsistence, U. S. Volunteers, to be brevetted lieutenant-colonel for faithful and meritorious service throughout the campaign.

Captain Brice, commissary of subsistence, U. S. Volunteers, to be brevetted major for faithful and meritorious service throughout the campaign.

E. H. Plummer, captain, U. S. Army, aid-de-camp, to be brevetted major for faithful and meritorious service throughout the campaign.

J. C. Gilmore, jr., captain and assistant adjutant-general, U. S. Volunteers, to be brevetted major for faithful and meritorious service during the campaign.

W. H. McKittrick, captain and assistant adjutant-general, U. S. Volunteers, to be brevetted major for faithful and meritorious service during the campaign.

Captain Johnson, assistant quartermaster, U. S. Volunteers, to be brevetted major for faithful and meritorious service during the campaign.

I wish to invite special attention to Dr. G. Goodfellow, of New York, who accompanied me throughout the campaign and performed much professional service, as well as duties as volunteer aid. I recommend him for favorable consideration of the War Department and appointment as surgeon of volunteers.

Mr. G. F. Hawkins, of New York, also accompanied me as volunteer aid, and I

recommend him for favorable consideration of the War Department for faithful and important services rendered.

My thanks are due to Admiral Sampson and Captain Goodrich, U. S. N., for their efficient aid in disembarking my army. Without their assistance it would have been impossible to have landed in the time I did.

I also express my warmest thanks to division, brigade, and regimental commanders without exception for their earnest efforts in carrying out my wishes and for the good judgment they invariably displayed in handling their troops.

The reports of the division commanders are attached hereto, and those of the brigade and regimental commanders forwarded herewith and attention respectfully invited to them.

Very respectfully,

WILLIAM R. SHAFER,
Major-General, U. S. Volunteers.

HEADQUARTERS FIFTH ARMY CORPS,
Camp Wikoff, Long Island, September 16, 1898.

ADJUTANT-GENERAL U. S. ARMY,
Washington, D. C.

SIR: By an oversight the Signal Corps was not mentioned in my report. I request that this supplementary report be filed with my original.

The Signal Corps proved itself very efficient and performed its duties to my entire satisfaction under the able management of the officer in charge, Lieutenant-Colonel Greene. I desire to add his name to those recommended for brevets, and recommend that he receive the brevet of colonel for faithful and meritorious services during the campaign.

I also wish to add to my list of recommendations the name of Lieut. William Brooke, Fourth Infantry, U. S. Army, who acted as my ordnance officer from the commencement of the expedition until after the fall of Santiago, and I recommend him to be brevetted major for very efficient and meritorious service during that period.

Very respectfully,

WILLIAM R. SHAFER,
Major-General, U. S. Volunteers, Commanding.

GOVERNORS ISLAND, NEW YORK HARBOR,
November 21, 1898.

SIR: In connection with my report of September 12, 1898, detailing the operations of the army in the campaign before Santiago de Cuba, I wish to invite special attention to the very valuable services rendered by Lieut. Col. George McC. Derby, Chief Engineer, U. S. Volunteers, and the six officers who assisted him. Their reconnaissances, made daily from the time of landing until the attack, gave me most valuable knowledge of the country up to the enemy's picket line. The two companies, C and E, United States Engineers, also rendered valuable services in road building and road repairing, construction of pier and temporary road bridges, and deserve special credit for the rapidity with which repairs were made on railroad bridges, particularly the large break in the bridge of Aguadores, the repairing of which gave us railroad communication between Siboney and Santiago. Extensive and important repairs were also made on the bridges on the railroad from Santiago to San Luis, which gave us connection with the interior, otherwise impossible, on account of the impassable condition of the roads.

I also desire to mention the squadron of the Second United States Cavalry, under Lieut. Col. William A. Rafferty, of that regiment. These four troops, under command of Captains Brett and Lewis and Lieutenants Allen and Clark, constituted

the only mounted force of my command, and performed most arduous and valuable services in escorting wagon and pack trains along dangerous sections of the road and in furnishing escorts for light batteries in battle and orderlies for my own and division headquarters. While the dense undergrowth, which covered most of the country, prevented this squadron from performing some of the duties usually assigned to a mounted command, yet it performed an immense amount of labor, which was accomplished to my entire satisfaction. As separate organizations, these troops were present on various parts of the battlefields of July 1, 2, and 3, and conducted themselves most creditably, as did the troopers individually when carrying dispatches under fire. I commend the squadron to the favorable consideration of my superiors.

Very respectfully,

WM. R. SHAFTER,
Major-General, U. S. Volunteers.

To ADJUTANT-GENERAL U. S. ARMY,
Washington, D. C.

HEADQUARTERS CAVALRY DIVISION,
Camp 6½ miles east of Santiago de Cuba, June 26, 1898.

To ADJUTANT-GENERAL FIFTH ARMY CORPS,
Steamship Seguraoa.

SIR: I have the honor to report that in obedience to instructions from the major-general commanding, given to me in person on June 23, I proceeded to Siboney (Juraquacito).

The enemy had evacuated the place at daylight that morning, taking a course toward Sevilla. A body of about 100 Cubans had followed and engaged the enemy's rear guard. About nine of them were wounded.

I rode out to the front and found the enemy had halted and established themselves at a point about three miles from Siboney. At night the Cubans returned to the vicinity of the town.

At 8 o'clock on that evening (of the 23d) General Young reached Siboney with 8 troops of Colonel Wood's regiment—A, B, D, E, F, G, K and L—500 strong; troops A, B, G, K, of the First Cavalry, in all 244; and troops A, B, E, and I of the Tenth Cavalry, in all 220 men, making the total force 964 men, which included nearly all of my command which had disembarked. These troops had marched from Daiquiri, 11 miles. With the assistance of General Castillo a rough map of the country was prepared and the position of the enemy fully explained, and I determined to make an attack.

At daylight on the 24th Wood's regiment was sent by General Young, accompanied by two of his staff officers, Lieuts. Tyree R. Rivers and W. R. Smedberg, jr., to approach the enemy on the left hand or more westerly road, while General Young, myself, and the troops of the First and Tenth Cavalry, with three Hotchkiss mountain guns, approached the enemy on the regular Sevilla road. We expected also to take the dynamite gun with us, but unfortunately it did not reach Siboney.

General Young and myself examined the position of the enemy. The lines were deployed and I directed him to open fire with the Hotchkiss guns. The enemy replied and the firing immediately became general.

Colonel Wood had deployed his regiment, his right nearly reaching the left of the regulars.

For an hour the fighting was very warm, the enemy being very lavish in the expenditure of ammunition, most of their firing being by volleys.

Finally the enemy gave way and retreated rapidly, our line keeping well closed upon them. Our men, being physically exhausted by both their exertions and the great heat, were incapable of maintaining the pursuit.

I can not speak too highly of the gallant and excellent conduct of the officers and men throughout the command.

General Young deserves special commendation for his cool, deliberate, and skillful management.

I also specially noticed his acting adjutant-general, Lieut. A. L. Mills, First Cavalry, who, under General Young's direction, was at the various parts of the line, acting with energy and cool courage.

The imperative necessity of disembarking with promptitude had impelled me to leave most of my staff to hasten this important matter, and, unfortunately, I only had with me Major Beach and Mr. Mestre, a Cuban volunteer aid, both of whom

during the engagement most creditably and bravely performed their duties. I am especially indebted to Maj. W. D. Beach for his cool and good judgment.

Colonel Wood's regiment was on the extreme left of the line, and too far distant for me to be a personal witness of the individual conduct of his officers and men, but the magnificent and brave work done by his regiment under the lead of Colonel Wood testifies to his courage and skill. The energy and determination of this officer had been marked from the moment he reported to me at Tampa, Fla., and I have abundant evidence of his brave and good conduct on the field and I recommend him for consideration of the Government.

I must rely upon his report to do justice to his officers and men, but I desire personally to add that all that I have said about Colonel Wood applies equally to Lieutenant-Colonel Roosevelt.

I was immediately with the troops of the First and Tenth Regular Cavalry dismounted, and personally noticed their brave and good conduct, which will be specially mentioned by General Young.

I personally noticed the good conduct of Capts. W. H. Beck, Robert P. P. Wainwright, and Jacob G. Galbraith, Maj. James M. Bell, Capt. Thomas T. Knox, and Lieut. George L. Byrom. The last three were wounded.

Major Bell, as he laid on the ground with a broken leg, said: "I only regret I can't go on with you farther."

Captain Knox, though severely wounded, insisted to me that he was not much hurt and continued as long as possible to exercise command, and Lieutenant Byrom also continued upon the line until he fainted.

I recommend these officers for favorable consideration of the Government.

I can not state positively as to the size of the Spanish force which we engaged or the extent of their casualties further than that the force was much greater than ours, and that the information I have would indicate that their killed and wounded very far exceeded the losses which our troops sustained, but our estimates on these points can only be verified when we have access to the reports of the Spanish commanders.

The engagement inspirited our troops and must have had a bad effect upon the spirits of the Spanish soldiers.

It also gave our army a beautiful and well-watered country, in which we have established our encampments. It has also given us a full view of Santiago and the surrounding country and enabled us to reconnoiter close up to the fortifications of that place.

Very respectfully,

JOS. WHEELER,
Major-General, U. S. Volunteers, Commanding.

HEADQUARTERS CAVALRY DIVISION, U. S. ARMY,
Before Santiago, Cuba, July 7, 1898.

TO ADJUTANT-GENERAL,
Fifth Army Corps.

SIR: After the engagement of June 24, I pushed forward my command through Sevilla into the valley, Lawton's and Kent's commands occupying the hills in the vicinity of that place. After two days' rest Lawton was ordered forward, and on the night of the 30th instructions were given by Major-General Shafter to this officer to attack Caney while the cavalry division and Kent's division were ordered to move forward on the regular Santiago road. The movement commenced on the morning of July 1. The cavalry division advanced and formed its line with its left near the Santiago road, while Kent's division formed its line with the right joining the left of the cavalry division.

Colonel McClernand, of General Shafter's staff, directed me to give instructions to General Kent, which I complied with in person, at the same time personally directing General Sumner to move forward. The men were all compelled to wade the San Juan River to get into line. This was done under very heavy fire of both infantry and artillery. Our balloon having been sent up right by the main road, was made a mark of by the enemy. It was evident that we were as much under fire in forming the line as we would be by an advance, and I therefore pressed the command forward from the covering which it was formed. It merged into open space in full view of the enemy, who occupied breastworks and batteries on the crest of the hill which overlooked Santiago, officers and men falling at every step. The troops advanced gallantly, soon reached the foot of the hill and ascended, driving the enemy from their works and occupying them on the crest of the hill. To accomplish this required courage and determination on the part of the officers and men of a high order, and the losses were very severe. Too much credit can not be given to General Sumner and General Kent and their gallant brigade commanders, Colonel Wood and Colonel Carroll, of the cavalry; Gen. Hamilton S. Hawkins, commanding First Brigade, Kent's Division, and Colonel Pearson, commanding Second Brigade. Colonel Carroll and Major Wessels were both wounded during the charge, but Major

Wessels was enabled to return and resume command. Colonel Wikoff, commanding Kent's Third Brigade, was killed at 12.10; Lieutenant-Colonel Worth took command and was wounded at 12.15; Lieutenant-Colonel Liscum then took command and was wounded at 12.20, and the command then devolved upon Lieutenant-Colonel Ewers, Ninth Infantry.

Upon reaching the crest I ordered breastworks to be constructed, and sent to the rear for shovels, picks, spades, and axes. The enemy's retreat from the ridge was precipitate, but our men were so thoroughly exhausted that it was impossible for them to follow. Their shoes were soaked with water by wading the San Juan River, they had become drenched with rain, and when they reached the crest they were absolutely unable to proceed further. Notwithstanding this condition, these exhausted men labored during the night to erect breastworks, furnished details to bury the dead and carry the wounded back in improvised litters. I sent word along the line that reinforcements would reach us and that Lawton would join our right and that General Bates would come up and strengthen our left. After reaching the crest of the ridge, General Kent sent the Thirteenth Regulars to assist in strengthening our right. At midnight General Bates reported and I placed him in a strong position on the left of our line. General Lawton had attempted to join us from Caney, but when very near our lines he was fired upon by the Spaniards and turned back, but joined us next day at noon by a circuitous route. During all the day on July 2 the cavalry division, Kent's division, and Bates's brigade were engaged with the enemy, being subjected to a severe fire and incurring many casualties, and later in the day Lawton's division also became engaged.

During the entire engagement my staff performed their duties with courage, judgment, and ability. Special credit is due to Lieut. Col. J. H. Dorst, Maj. William D. Beach, Capt. Joseph E. Dickman, and Lieut. M. F. Steele. I desire also to say that Lieuts. James H. Reeves and Joseph Wheeler, jr., Capt. William Astor Chanler, Maj. E. A. Garlington, Mr. Aurelius Mestre, and Corporal John Lundmark also deserve high commendation for courage and good conduct. Major West, my quartermaster, deserves special commendation for his energy and good conduct during the campaign, and Maj. Valery Havard and Mr. Leonard Wilson have also done their full duty. Captain Hardie and First Lieut. F. J. Koester, with Troop G, Third Cavalry, were detailed with headquarters and conducted themselves handsomely under fire. The superb courage displayed by the officers and men will be specially mentioned in the reports of subordinate commanders.

Our losses were as follows:

	Killed.		Wounded.		Missing.		Aggre- gate.	Strength.	
	Offi- cers.	Men.	Offi- cers.	Men.	Offi- cers.	Men.		Offi- cers.	Men.
FIRST BRIGADE.									
Third Cavalry		3	6	45		3	57	22	420
Sixth Cavalry		4	4	51			59	16	427
Ninth Cavalry	1	2	2	17		1	23	12	207
	1	9	12	113		4	139	50	1,054
SECOND BRIGADE.									
Brigade staff	1		4				5	9	14
First Cavalry	1	12		47		1	61	21	501
Tenth Cavalry	2	5	8	61		5	80	22	450
First Volunteer Cavalry ...	1	14	5	67			87	25	517
Total.....	5	31	17	175		6	233	77	1,482
Total loss	6	40	29	288		10	272	127	2,536

The following is a list of the officers killed and wounded in the cavalry division:

Officers killed.—Lieut. Col. James M. Hamilton, Ninth Cavalry; Maj. Albert G. Force, First Cavalry; Captain O'Neil, First United States Volunteer Cavalry; First Lieut. William E. Shipp, Tenth Cavalry; First Lieut. W. H. Smith, Tenth Cavalry; Acting Asst. Surg. H. W. Danforth, Ninth Cavalry.

Officers wounded.—Lieut. Col. Henry Carroll, Sixth Cavalry (commanding First Brigade); Maj. Henry W. Wessels, Third Cavalry; Maj. T. J. Wint, Tenth Cavalry; Major and Assistant Surgeon La Motte, First United States Volunteer Cavalry; Capt. J. B. Kerr, Sixth Cavalry; Capt. George A. Dodd, Third Cavalry; Capt. George K.

Hunter, Third Cavalry; Capt. C. W. Taylor, Ninth Cavalry; Capt. A. P. Blockman, Sixth Cavalry; Capt. John Bigelow, Jr., Tenth Cavalry; Captain Henry, commander United States Volunteers; First Lieut. O. L. Mills, First Cavalry, captain and assistant adjutant-general volunteers; First Lieut. M. H. Barnum, Tenth Cavalry; First Lieut. Arthur Thayer, Third Cavalry; First Lieut. O. B. Meyer, Third Cavalry; First Lieut. M. S. Wood, Ninth Cavalry; First Lieutenant Merrillat, Third Cavalry; First Lieutenant Carr, First United States Volunteer Cavalry; First Lieutenant Leahey, First United States Volunteer Cavalry; Second Lieutenant Williard, Tenth Cavalry; Second Lieut. Walter C. Short, Sixth Cavalry; Second Lieutenant McCoy, Tenth Cavalry; Second Lieutenant Roberts, Tenth Cavalry; Second Lieut. H. S. Devereux, First United States Volunteer Cavalry; Second Lieutenant Day, First United States Volunteer Cavalry; Second Lieutenant Huskell, First United States Volunteer Cavalry.

General Kent's report of casualties has been forwarded.

The strength given in the tabulated statement above is the aggregate strength of the command, but as there were many details, the above figures are about 15 per cent greater than the forces actually engaged in battle.

The command has been active in strengthening their position, and commanders and their staffs have thoroughly informed themselves as to the topographical features of the country and the situation of the enemy.

Very respectfully,

JOS. WHEELER,
Major-General Volunteers.

HEADQUARTERS FIRST DIVISION, FIFTH ARMY CORPS,
In the field, Fort San Juan, near Santiago de Cuba, July 7, 1898.

The ASSISTANT ADJUTANT-GENERAL, FIFTH ARMY CORPS.

SIR: I have the honor to submit the following report of the operations of my command in the battle of July 1:

On the afternoon of June 30, pursuant to orders given me verbally by the corps commander at his headquarters, I moved my Second and Third Brigades (Pearson and Wikoff) forward about 2 miles to a point on the Santiago road, near corps headquarters. Here the troops bivouacked, the First Brigade (Hawkins) remaining in its camp of the two preceding days, slightly in rear of corps headquarters.

On the following morning (July 1) at 7 o'clock I rode forward to the hill where Captain Grimes's battery was in position. I here met Lieutenant-Colonel McClermand, assistant adjutant-general Fifth Corps, who pointed out to me a green hill in the distance which was to be my objective on my left, and either he or Lieutenant Miley, of Major-General Shafter's staff, gave me directions to keep my right on the main road leading to the city of Santiago. I had previously given the necessary orders for Hawkins's Brigade to move early, to be followed in turn by Wikoff and Pearson. Shortly after Grimes's battery opened fire I rode down to the stream and there found General Hawkins at the head of his brigade at a point about 250 yards from the El Pozo sugar house. Here I gave him his orders.

The enemy's artillery was now replying to Grimes's battery. I rode forward with Hawkins about 150 yards, closely followed by the Sixth Infantry, which was leading the First Brigade. At this point I received instructions to allow the cavalry the right of way, but for some unknown reason they moved up very slowly, thus causing a delay in my advance of fully forty minutes. Lieutenant Miley, of General Shafter's staff, was at this point and understood how the division was delayed, and reported several times that he understood I was making all the progress possible. General Hawkins went forward, and word came back in a few minutes that it would be possible to observe the enemy's position from the front. I immediately rode forward with my staff. The fire of the enemy's sharpshooters was being distinctly felt at this time. I crossed the main ford of the San Juan River, joined General Hawkins, and with him observed the enemy's position from a point some distance in advance of the ford. General Hawkins deemed it possible to turn the enemy's right at Fort San Juan, but later, under the heavy fire, this was found impracticable for the First Brigade, but was accomplished by the Third Brigade coming up later on General Hawkins's left. Having completed the observation, with my staff I proceeded to join the head of my division, just coming under heavy fire. Approaching the First Brigade, I directed them to move alongside the cavalry (which was halted). We were already suffering losses caused by the balloon near by attracting fire and disclosing our position.

The enemy's infantry fire, steadily increasing in intensity, now came from all directions, not only from the front and the dense tropical thickets on our flanks, but from sharpshooters thickly posted in trees in our rear, and from shrapnel apparently aimed at the balloon. Lieutenant-Colonel Derby, of General Shafter's staff, met me about this time and informed me that a trail or narrow way had been discovered from the balloon a short distance back leading to the left to a ford lower down the

stream. I hastened to the forks made by this road, and soon after the Seventy-first New York Regiment, of Hawkins's Brigade, came up. I turned them into the bypath indicated by Lieutenant-Colonel Derby, leading to the lower ford, sending word to General Hawkins of this movement. This would have speedily delivered them in their proper place on the left of their brigade, but under the galling fire of the enemy the leading battalion of this regiment was thrown into confusion and recoiled in disorder on the troops in rear. At this critical moment the officers of my staff practically formed a cordon behind the panic-stricken men and urged them to again go forward. I finally ordered them to lie down in the thicket and clear the way for others of their own regiment who were coming up behind. This many of them did, and the Second and Third battalions came forward in better order and moved along the road toward the ford. One of my staff officers ran back, waving his hat, to hurry forward the Third Brigade, who, upon approaching the forks, found the way blocked by men of the Seventy-first New York. There were other men of this regiment crouching in the bushes, many of whom were encouraged by the advance of the approaching column to rise and go forward. As already stated, I had received orders some time before to keep in rear of the cavalry division. Their advance was much delayed, resulting in frequent halts, presumably to drop their blanket rolls and due to the natural delay in fording a stream. These delays under such a hot fire grew exceedingly irksome, and I therefore pushed the head of my division as quickly as I could toward the river, in column of files or twos, parallel in the narrow way by the cavalry. This quickened the forward movement and enabled me to get into position as speedily as possible for the attack. Owing to the congested condition of the road the progress of the narrow columns was however painfully slow. I again sent a staff officer at a gallop to urge forward the troops in rear. The head of Wikoff's brigade reached the forks at 12.20 p. m. and hurried on the left, stepping over prostrate forms of men of the Seventy-first. This heroic brigade, consisting of the Thirteenth, Ninth, and Twenty-fourth U. S. Infantry, speedily crossed the stream and were quickly deployed to the left of the lower ford. While personally superintending this movement, Colonel Wikoff was killed, the command of the brigade then devolving upon Lieutenant-Colonel Worth, Thirteenth Infantry, who immediately fell severely wounded, and then upon Lieutenant-Colonel Licam, Twenty-fourth Infantry, who, five minutes later, also fell under the withering fire of the enemy. The command of the brigade then devolved upon Lieut. Col. E. P. Ewers, Ninth Infantry. Meanwhile, I had again sent a staff officer to hurry forward the Second Brigade which was bringing up the rear. The Tenth and Second Infantry, soon arriving at the forks, were deflected to the left, to follow the Third brigade, while the Twenty-first was directed along the main road to support Hawkins.

Crossing the lower ford a few minutes later, the Tenth and Second moved forward in column in good order toward the green knoll already referred to as my objective on the left. Approaching the knoll the regiments deployed, passed over the knoll and ascended the high ridge beyond, driving back the enemy in the direction of his trenches. I observed this movement from the Fort San Juan Hill. Col. E. P. Pearson, Tenth Infantry, commanding the Second Brigade, and the officers and troops under his command, deserve great credit for the soldierly manner in which this movement was executed. I earnestly recommend Colonel Pearson for promotion. Prior to this advance of the Second Brigade, the Third, connecting with Hawkins's gallant troops on the right, had moved toward Fort San Juan, sweeping through a zone of most destructive fire, scaling a steep and difficult hill and assisting in capturing the enemy's strong position (Fort San Juan) at 1.30 p. m. This crest was about 125 feet above the general level and was defended by deep trenches and a loop-holed brick fort, surrounded by barbed wire entanglements. General Hawkins, some time after I reached the crest, reported that the Sixth and Sixteenth Infantry had captured the hill, which I now consider incorrect; credit is almost equally due the Sixth, Ninth, Thirteenth, Sixteenth, and Twenty-fourth Regiments of Infantry. Owing to General Hawkins's representations, I forwarded the report sent to Corps Headquarters about 3 p. m. that the Sixth and Sixteenth Infantry regiments had captured the hill. The Thirteenth Infantry captured the enemy's colors waving over the fort, but unfortunately destroyed them, distributing the fragments among the men, because, as was asserted, "It was a bad omen," two or three men having been shot while assisting Private Arthur Agnew, Company H, Thirteenth Infantry, the captor. All fragments which could be recovered are submitted with this report. The greatest credit is due to the officers of my command, whether company, battalion, regimental, or brigade commanders, who so admirably directed the formation of their troops, unavoidably intermixed in the dense thicket, and made the desperate rush for the distant and strongly defended crest. I have already mentioned the circumstances of my Third Brigade's advance across the ford where, in the brief space of ten minutes, it lost its brave commander (killed) and the next two ranking officers by disabling wounds, yet, in spite of

these confusing conditions, the formations were effected without hesitation, although under a stinging fire, companies acting singly in some instances, and by battalion and regiments in others, rushing through the jungle across the stream, waist deep, and over the wide bottom thickly set with barbed wire entanglements. In this connection I desire to particularly mention First Lieut. Wendell L. Simpson, adjutant Ninth Infantry, acting assistant adjutant-general, Third Brigade, who was noticeably active and efficient in carrying out orders which I had given him to transmit to his brigade commander, who no longer existed.

The enemy having retired to a second line of rifle pits, I directed my line to hold their positions and entrench. At ten minutes past 3 p. m. I received almost simultaneously two requests—one from Colonel Wood, commanding a cavalry brigade, and one from General Sumner, asking for assistance for the cavalry on my right, "as they were hard pressed." I immediately sent to their aid the Thirteenth Infantry who promptly went on this further mission, despite the heavy losses they had already sustained.

Great credit is due to the gallant officer and gentleman, Brig. Gen. H. S. Hawkins, who, placing himself between the two regiments, leading his brigade, the Sixth and Sixteenth Infantry, urged and led them by voice and bugle calls to the attack so successfully accomplished. My earnest thanks are due to my staff officers present at my side and under my personal observation on the field, especially to Maj. A. C. Sharpe, assistant adjutant-general; Maj. Philip Reade, inspector-general; Capt. U. G. McAlexander, chief quartermaster, and my aids, First Lieut. George S. Cartwright, Twenty-fourth Infantry, and First Lieut. William P. Jackson, Second Infantry; also to Mr. Adolpho Carlos Munoz, the latter a volunteer aid, subsequently wounded in the fight of the 2d instant, who richly merits a commission for his able assistance, given without pay.

The officers enumerated should at least be brevetted for gallantry under fire. I also personally noticed the conduct of First Lieut. F. J. Kirkpatrick, assistant surgeon, United States Army, on duty with the Twenty-fourth Infantry, giving most efficient aid to the wounded under fire. I observed several times First Lieut. J. D. Miley, Fifth Artillery, aid to General Shafter, who was conspicuous throughout the day for his coolness under fire, delivering instructions with apparent unconcern. The bloody fighting of my brave command can not be adequately described in words. The following list of killed, wounded, and missing, tells the story of their valor:

Report of killed, wounded, and missing July 1, 1898, First Division, Fifth Army Corps.

Organisation.	Killed.		Wounded.		Missing.
	Officers.	Men.	Officers.	Men.	
First Brigade:					
Sixteenth Infantry	1	13	5	83	6
Sixth Infantry	4	18	7	92	.....
Seventy-first New York Volunteer Infantry...	4	12	1	47	43
Total	9	38	13	221	49
Second Brigade:					
Tenth Infantry	1	4	5	21	.....
Twenty-first Infantry		5	1	25	.....
Second Infantry		1	4	16	.....
Total	1	10	10	62	.....
Third Brigade:					
Brigade commander	1				.....
Ninth Infantry	1	8		23	1
Thirteenth Infantry	2	16	5	81	1
Twenty-fourth Infantry	2	16	4	73	7
Total	6	29	9	177	9
Grand total	16	77	32	460	58

At daylight on the morning of July 2 the enemy resumed the battle, and firing continued throughout the day, part of the time in a drenching rain. At night-fall the firing ceased, but at 9 p. m. a vigorous assault was made all along our

lines. This was completely repulsed, the enemy again retiring to his trenches. The following morning firing was resumed and continued until near noon when a white flag was displayed by the enemy and firing was ordered to cease. The casualties of these two days (July 2 and 3) were as follows:

Report of killed, wounded, and missing, July 2, 1898, First Division, Fifth Army Corps.

Organization.	Killed.		Wounded.		Missing.
	Officers.	Men.	Officers.	Men.	
Division Staff:					
First Brigade			1		
General officers			1		
Field and staff:					
Sixth Infantry				2	
Sixteenth Infantry		1		21	1
Seventy-first New York Volunteer Infantry		1		7	
Total		2	1	30	1
Second Brigade:					
Field and staff					
Tenth Infantry		1		14	3
Twenty-first Infantry		1		7	
Second Infantry		4		31	
Total		6		52	3
Third Brigade:					
Field and staff					
Ninth Infantry				4	
Thirteenth Infantry				3	
Twenty-fourth Infantry		1	2	1	
Total		1	2	8	
Grand total		9	4	90	4

Mr. A. C. Munoz, volunteer aid to division commander.

Report of killed, wounded, and missing, July 3, 1898, First Division, Fifth Army Corps.

Organization.	Killed.		Wounded.		Missing.
	Officers.	Men.	Officers.	Men.	
First Brigade:					
Field and staff					
Sixth Infantry				2	
Sixteenth Infantry				1	
Seventy-first New York Volunteer Infantry				4	
Total				7	
Second Brigade:					
Field and staff					
Tenth Infantry					
Twenty-first Infantry					
Second Infantry		1			
Total		1			

Report of killed, wounded, and missing, July 3, 1898, First Division, Fifth Army Corps—Continued.

Organization.	Killed.		Wounded.		Missing.
	Officers.	Men.	Officers.	Men.	
Third Brigade:					
Field and staff					
Ninth Infantry					
Thirteenth Infantry				1	
Twenty-fourth Infantry					
Total				1	
Grand total		1		8	
Grand total, July 1, 2, and 3, 1898	12	87	36	561	63

One hospital corps man killed, attached to Tenth Infantry, not included in above total.

I desire, in conclusion, to express my gratitude to Maj. Gen. Joseph Wheeler for his courteous conduct to me, and, through me, to my division, under the trying circumstances enumerated.

Though ill and suffering, General Wheeler was so perfectly at home under fire that he inspired all of us with assurance.

Attention is invited in this connection to the reports of brigade and subordinate commanders herewith. I cordially indorse their commendations.

Very respectfully,

J. FORD KENT,
Brigadier-General, United States Volunteers, Commanding.

HEADQUARTERS SECOND DIVISION, FIFTH ARMY CORPS,
Camp near Santiago de Cuba, July 3, 1898.

The ADJUTANT-GENERAL,
Fifth Army Corps, near Santiago de Cuba.

SIR: I have the honor to report the following operations of the Second Division in the capture of El Caney on July 1, 1898. The town of El Caney is situated at an important point about 4 miles northeast of Santiago de Cuba, on the main road from Guantanamo to that city, where reenforcements for the Spanish garrison of Santiago de Cuba would probably concentrate. The town was strongly fortified with numerous blockhouses within its limits and on the roads leading thence. On a prominent hill of the town was a stone fort surrounded, as is now known, by intrenchments cut in solid rock. The reduction of El Caney being determined upon, and being on the right flank of the general advance on Santiago de Cuba, the duty devolved on the Second Division, to which was attached Light Battery E, First Artillery commanded by Capt. Allyn Capron, First Artillery. After due reconnaissance by the division and brigade commanders, the movement began about 3 p. m. on June 30, from the division camp about 4 miles east of Santiago on the main road from Siboney through Sevilla. The position of the brigades and the details of operations on July 1 are quite fully set forth in the accompanying reports of regimental and brigade commanders and in the sketch herewith submitted. The light battery first opened on a column of Spanish troops which appeared to be cavalry moving westward from El Caney and about 2 miles range, resulting, as was afterwards learned, in killing 16 in the column. The battery remained during the action at its first position until about 2.30 p. m., when it was moved to a new position south of and about 1,000 yards from certain blockhouses in the town where a few shots, all taking effect, were fired. This firing terminated the action, as the Spanish garrison was attempting to escape. Gen. J. C. Bates, United States Volunteers, with two regiments of his independent brigade—the Third and Twentieth Infantry—having been sent by the major-general commanding the forces of the United States in Cuba to relieve the second brigade of this division, which was holding the main road from El Caney to Santiago, so as to permit it to join in the attack, also came forward, joined in the attack, taking position between the Second and Third Brigades, and rendered material assistance, especially in the assault of the stone fort.

I heartily approve the special mention of individuals and recommendations made in the reports of the regimental and brigade commanders, and regret that others who deserve mention have not received it, through circumstances. During the

action I was accompanied most of the time by Maj. Gen. J. C. Breckenridge, Inspector-General U. S. Army, as a spectator, and had the advantage of his valuable suggestions and advice during the day, for which I desire to express my sincere appreciation. His horse was shot under him on the advance upon Santiago the morning of the 2d instant.

To Gen. Adna R. Chaffee I am indebted for a thorough and intelligent reconnaissance of the town of El Caney and vicinity prior to the battle, and the submission of a plan of attack which was adopted. I consider General Chaffee one of the best practical soldiers in the Army and recommend him for special distinction for successfully charging the stone fort mentioned in this report, the capture of which practically closed the battle. I desire to invite special attention to General William Ludlow, commanding the First Brigade. General Ludlow's professional accomplishments are well known, and his assignment to command a brigade in my division I consider a high compliment to myself. In this battle General Ludlow proved himself a capable and able commander. His coolness, good judgment, and prompt action in difficult situations were remarkable. To this and his personal example on the firing line was due the decisive success of the attack on his part of the line. I recommend General Ludlow for substantial recognition.

To Capt. H. C. Carbaugh, assistant adjutant-general, adjutant-general of the division, I desire to express my thanks and appreciation for untiring energy and faithful work in dangerous positions on this occasion, and I desire particularly to mention him for gallantry in volunteering to carry and carrying to General Chaffee, while he was most hotly engaged on the firing line, instructions concerning the assault upon the stone fort mentioned in these reports, and to recommend Captain Carbaugh for promotion to the rank of major and assistant adjutant-general and for brevet of lieutenant-colonel for this act. I desire also to commend to favorable consideration Maj. G. Creighton Webb, inspector-general on my staff, for persistently riding his horse along the firing line of the First Brigade in search of the brigade-commander to deliver important instructions when men of his escort demurred at going with him, and recommend that he receive the brevet of lieutenant-colonel of volunteers. I am particularly pleased that this battle gives me a suitable opportunity to call to the notice of my superiors Mr. R. G. Mendoza, a volunteer aid on my staff. Mr. Mendoza is a Cuban by birth, an American citizen, a young man of prepossessing appearance, of education and refinement. He joined me at Tampa, Fla., with the consent and authority of the general commanding the forces, as a volunteer aid. Since that time he has become one of my most competent and reliable assistants, and has been untiring in his labors, both night and day. In the battle he was active, energetic, and courageous. He has my hearty thanks for his invaluable assistance, and I strongly recommend and urge that he be offered the appointment of captain and assistant adjutant-general of volunteers and that he be left on duty with me. I desire also to commend for gallantry and courageous conduct in this battle, and for faithful and valuable services generally, Mr. E. L. D. Breckenridge, a son of Maj. Gen. J. C. Breckenridge, Inspector-General of the Army, who has also been on duty on my staff during the campaign as volunteer aid. Mr. Breckenridge is educated and refined, a gentleman in every respect, and has proven in battle his courage and coolness. I earnestly recommend that he be appointed a second lieutenant in the Army in consideration of the services rendered in this battle. To Lieut. H. H. Warren, Second Massachusetts, aid-de-camp, I desire to tender my thanks for courageous and efficient performance of duty in this battle, and to recommend that he receive a brevet of captain of volunteers. To Surg. H. S. Kilbourne, chief surgeon, is due the thanks, not only of myself, but of the whole division for faithful and unremitting attention to the wounded on the field and under fire.

It may not be out of place for me to mention the fact that Capt. J. C. Gilmore, jr., of the staff of the general commanding the forces, joined me with important instructions and that he might see for himself the situation, the better to inform the commanding general, he rode the firing line with me, exhibiting a coolness under severe fire worthy a veteran.

Very respectfully,

H. W. LAWTON,
Brigadier-General, U. S. Volunteers, Commanding Division.

HEADQUARTERS INDEPENDENT BRIGADE,
In front of Santiago de Cuba, July 8, 1898.

ADJUTANT-GENERAL FIFTH ARMY CORPS:

SIR: I have the honor to report that my brigade left Siboney, Cuba, on the evening of June 30, at 8.30, and marched up over the hill trail. We followed this trail to where it joins the main road and proceeded along the main road in the dark

to the place just vacated by Wheeler's cavalry division as a camp. Here we found General Wheeler's headquarter tents still standing, and went into camp in the rear of them about midnight. We struck camp at 6.30 a. m., July 1, and marched to a point adjacent to General Shafter's headquarters, where I reported in person to General Shafter. At 10.05 a. m. I moved my brigade from this location to within about a mile and a half of El Caney, and met General Lawton upon the road at this point. After a consultation with him, lasting some minutes, I halted my brigade upon the road in order to give an opportunity for the placing of a battery that General Lawton expected to put in position between Colonel Miles's right and General Chaffee's left. I waited some time for this to be done, but the battery not putting in an appearance, I moved my brigade down the road in the direction of El Caney, crossed the San Juan River, and taking the first cross-roads moved to the right to a position upon this crossroad to the right of the brigade commanded by Colonel Miles, and pushed rapidly to the front. After my brigade remained in this road for some time, under a heavy fire, we moved to the right to the assault of a small hill, occupied upon the top by a stone fort and well protected by rifle pits. General Chaffee's brigade charged them from the right and the two brigades joining upon the crest, opened fire from this point of vantage, lately occupied by the Spanish, upon the village of El Caney. From this advantageous position the Spanish were easily driven from place to place in the village proper, and as fast as they sought shelter in one building were driven out to seek shelter elsewhere, the sharpshooters of my command were enabled to do effective work at this point. The town proper was soon pretty thoroughly cleaned out of Spanish, though a couple of blockhouses upon the hill to the right of the town offered shelter to a few, and some could be seen retreating along a mountain road leading to the northwest. A part of these made a stand in a field among some bowlders. I desire to say at this point that the Third United States Infantry, under command of Col. John H. Page, and the Twentieth United States Infantry, under command of Maj. William S. McCaskey, performed most efficient and meritorious services in the engagement before the village of El Caney. At about 4.30 p. m. the firing from the village had practically ceased, and as General Ludlow's brigade was then moving up the valley from the left upon the village it was deemed unwise to charge El Caney, as our troops would have been subjected to the fire from this brigade. After consultation with General Chaffee, I withdrew my brigade, hoping there was yet time to aid in the attack more to the left. My command, having had a long hard march, the withdrawal took more time than anticipated; darkness was coming on. I therefore halted the command at the first water at which we arrived and proceeded in person to report to the corps commander; was then ordered to the extreme left. I immediately moved the command and reached this position at midnight. My command had been then continuously marching or fighting for twenty-seven and one-half hours, with the exception of six and one-half hours spent near General Wheeler's headquarters. On the morning of July 2 I placed the Twentieth Infantry on the left of the Second Infantry and in continuation of their line, and held the Third Infantry in reserve near the brigade of Colonel Pearson, of General Kent's division, as that part of the line seemed to need to be strengthened. The loss in action at El Caney suffered by this brigade was 3 killed and 10 wounded; on the 2d of July, was 1 killed and 18 wounded. The wounded include Captains Rodman and Moon, of the Twentieth Infantry.

I desire to mention the following members of my staff for efficient and gallant service in the action before El Caney and in front of Santiago: Major Logan, Major Wilkins, Captain Wright, and Lieutenant Smiley. I wish also to add that Major Ives, my chief surgeon, was on the firing line and did efficient services during the progress of the fight and behaved in most gallant manner. I invite attention to the inclosed sketch, which gives the itinerary of march of this brigade during the two days.

Very respectfully,

J. C. BATES,

Brigadier-General of Volunteers, Commanding Brigade.

TELEGRAPHIC AND OTHER CORRESPONDENCE RELATING TO THE WAR.

Early in May a movement upon Havana was contemplated, as it was believed that the city could be assaulted and captured before the rainy season set in, but the plan was subsequently abandoned on account of the reported movements of the enemy's fleet.

It was proposed to send a portion of the army of invasion from Tampa, and to gather another part of it at Key West, on account of the close proximity of the latter place to Mariel, Cuba (a point about 26 miles west of Havana), as will be shown by the following dispatches:

HEADQUARTERS OF THE ARMY,
Washington, D. C., May 9, 1898.

The Major-General Commanding directs that the following orders be sent by telegraph to General Wade, at Tampa:

Direct Major-General Shafter to move his command, under protection of Navy, and seize and hold Mariel, or most important point on north coast of Cuba and where territory is ample to land and deploy army. Follow up his command with all the force sent to you. Troops will be sent you as rapidly as possible from Chickamauga and other points. Have troops fully equipped; send abundance of ammunition and ship with them food for men and animals for sixty days, to be followed by four months' supplies.

J. C. GILMORE,
Assistant Adjutant-General.

ADJUTANT-GENERAL'S OFFICE,
Washington, May 9, 1898—6.7 p. m.

General WADE, *Commanding troops at Tampa, Fla.:*

With the approval of the Secretary of War, the Major-General Commanding directs that General Shafter move his command under protection of Navy and seize and hold Mariel, or most important point on north coast of Cuba, and where territory is ample to land and deploy army. Follow up his command with all the forces sent to you. Troops will be sent you as rapidly as possible from Chickamauga and other points. Have troops fully equipped, send abundance of ammunition, and ship with them food for men and animals for sixty days, to be followed by four months' supplies. Acknowledge receipt.

H. C. CORBIN, *Adjutant-General.*

One great difficulty in the concentration of a large force at Key West, however, was found to be a lack of fresh water there, as will be shown by the following dispatches:

TAMPA BAY HOTEL, *Tampa, Fla., May 7, 1898—3.44 p. m.*

ADJUTANT-GENERAL UNITED STATES ARMY, *Washington, D. C.:*

Am crowding work of watering and coal transport and put in pen and stall for sortie (stock?). Will have it completed Wednesday sure. Many obstacles to——." SHAFER, *Brigadier-General.*

TAMPA BAY HOTEL, *Tampa, Fla., May 7, 1898—6.50 p. m.*

ADJUTANT-GENERAL, UNITED STATES ARMY,
War Department, Washington, D. C.:

Colonel Lawton just returned from Key West. Brings message from Commodore Watson that water is absolutely necessary; that supply on all ships is very short, and that if can assist him in getting supply it will be a great favor to him. A barge, capacity one hundred thousand gallons, can start in morning for Key West, towed by one of ships under charter. Cost of water two cents per gallon. No tug here for hire. Shall I send it?

SHAFER, *Brigadier-General.*

ADJUTANT-GENERAL'S OFFICE, *Washington, May 8, 1898.*

General SHAFER,
Tampa Bay Hotel, Tampa, Fla.:

Your telegram concerning water supply for Commodore Watson received, and Secretary of War directs you to make every possible effort to furnish anything and everything to help him along. In this and other cases Secretary of War approves any action you take, but desires every such order of yours reported for his information.

H. C. CORBIN, *Adjutant-General.*

* Telegram apparently not completed.

HEADQUARTERS OF THE ARMY,
Washington, D. C., May 10, 1898.

The Major-General Commanding directs that the following orders be telegraphed General Wade, Tampa, Fla.: That the movement of troops to Cuba is delayed until Monday May 18, 1898. In the meantime he will send the infantry in the ships, with an abundant supply of water and whatever else is required with them, to Key West, there to disembark. The ships are to return to Tampa to carry more infantry to Key West until there are about 12,000 men there. These will move from Key West to Dry Tortugas and Cuba on ships coming from New York. Also, that General Brooke has been directed to send to Tampa from Chickamauga the Second, Seventh, Eighth, Twelfth, and Sixteenth Infantry. These can be forwarded to Key West by any means available.

J. C. GILMORE,
Assistant Adjutant-General.

ADJUTANT-GENERAL'S OFFICE,
Washington, May 10, 1898—6.35 p. m.

General WADE, *Commanding Troops at Tampa, Fla.:*

Movement of troops to Cuba is delayed until Monday, May 16. In the meantime you will send infantry in the ships, with an abundant supply of water and whatever else is required with them, to Key West, there to disembark. The ships are to return to Tampa to carry more infantry to Key West until there are about 12,000 men there. These will move from Key West to Dry Tortugas and Cuba on ships coming from New York. General Brooke has been directed to send to Tampa from Chickamauga the Second, Seventh, Eighth, Twelfth, and Sixteenth Infantry. These can be forwarded to Key West by any means available.

By command General Miles.

H. C. CORBIN, *Adjutant-General.*

TAMPA BAY HOTEL, Tampa, Fla., May 11, 1898.
(Received Washington, 8.12 p. m.)

ADJUTANT-GENERAL UNITED STATES ARMY, FOR COMMANDING GENERAL,
War Department, Washington, D. C.:

Water for large body of troops at Key West is serious question. Absolutely no water there. Only water barge from this port, capacity 130,000 gallons, should reach Key West to-morrow with water for Navy, and be back Friday. Transports carry considerable water, but have no way of distillation. Is imperative that water be placed in Key West before troops begin to arrive. Quartermaster-General has been asked to charter, clean, loan, and start 1,000,000 gallons tank steamer with light-draft barge for unloading. Dry Tortugas reported to have brackish water in cisterns. Am now trying to ascertain quantity and quality. Expect information.

J. F. WADE, *Brigadier General.*

TAMPA BAY HOTEL, Tampa, Fla., May 21, 1898—11.21 a. m.

Gen. N. A. MILES, *Washington, D. C.:*

On account of difficulty in finding suitable camp ground, with abundant water supply, I have temporarily stopped part of the volunteer regiments at Jacksonville, and placed them under command of General Lawton. The Government will not be subjected to extra expense on account of transportation, nor for supply depots or officer. They will be brought closer to Tampa as soon as possible. The principal difficulty here is water, which must be drawn from wells; surface water can not be used.

SHAFTER, *Major-General.*

WAR DEPARTMENT, Washington, May 26, 1898.

Maj. Gen. NELSON A. MILES,
Commanding U. S. Army, Washington, D. C.

SIR: You will proceed to the following points, to make a thorough inspection of the troops there in camp:

Chickamauga, Ga.
Tampa, Fla.
Mobile, Ala.

You will be accompanied by the officers of your personal staff. On the completion of this duty you will return to the city and make report of the inspection herein ordered.

I have the honor to be, very respectfully,

R. A. ALGER,
Secretary of War.

HEADQUARTERS OF THE ARMY,
Washington, D. C., May 27, 1898.

The honorable the SECRETARY OF WAR.

SIR: Referring to my letter of yesterday, and to our consultation since, I desire to submit the following:

As we are now about to inaugurate active military operations in conjunction with the Navy, I think it would be advisable to load the transports at Tampa with a strong force of infantry and artillery, move them to Key West, and thence along the northern coast of Cuba, where they would have the full protection of Admiral Sampson's fleet until they reach Admiral Schley's fleet at Santiago de Cuba, and then, by a combined effort of the Army and Navy, capture the harbor, garrison, and possibly the Spanish fleet at that point.

If before reaching Admiral Schley's fleet it shall be found that he has already accomplished the above object, or that the Spanish fleet shall have escaped, I then urge the importance of a combined attack of the Army and Navy upon Porto Rico. We will be able to land a superior force, and I believe that a combined effort will result in capturing the island, with its garrison, provided it is done before it can be reinforced from Spain. The distance from Key West to Porto Rico is 1,040 miles, and from Cadiz, Spain, to Porto Rico it is about 4,000 miles. The possession of Porto Rico would be of very great advantage to the military, as it would cripple the forces of Spain, giving us several thousand prisoners. It could be well fortified, the harbor mined, and would be a most excellent port for our Navy, which could be speedily relieved from any responsibility in the charge of that port, as we could leave a sufficient garrison to hold it against any force that might be sent against it.

Then we should commence, in my judgment, a movement toward the west by capturing the ports along the northern coast of Cuba, at the eastern end, supplying the insurgents with abundance of arms and munitions of war, and as speedily as possible land our cavalry and sufficient light artillery to enable them to move from the harbor of Pto de Nuevitas along the line of railroad to Puerto Principe. From that base our cavalry and light artillery, in conjunction with the forces of Lieutenant-General Garcia and General Gomez, should move west to near Santa Clara. These movements, in my judgment, can all be accomplished during the rainy season, through a country comparatively free from yellow fever, well stocked with cattle, and having grass sufficient for our animals. While this is being accomplished our Volunteer Army will be prepared to land in the vicinity of Mariel, Havana, or Matanzas in sufficient force to complete the capture or destruction of the Spanish forces upon the island of Cuba. The advantage of this movement will be that the army and navy will act in concert and close unison; that it does not divide our navy, and that it will utilize our most available military force in the best way during the time of the year when military operations are most difficult.

I believe that the entrance to the port of Cienfuegos can be obstructed or blocked by one or two monitors to better advantage than to send the army there, where it would have to meet a strong garrison, which is already there, and all of the forces that can be quickly sent there by rail directly from Havana and Matanzas.

If the above plan is approved, troops could be ordered to embark on the transports immediately, and the purpose would be the occupation of Spanish territory, first, by moving our troops as speedily as possible to Santiago de Cuba and Porto Rico, and later to the north coast of Cuba, especially our cavalry. This military occupation to continue until hostilities cease.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

At this time the Secretary of the Navy had become convinced that the enemy's fleet, under the command of Admiral Cervera, was in Santiago Harbor, and every energy was bent from that time to concentrate a force of the army near Santiago to aid in the capture or destruction of the fleet and army in Santiago and its harbor.

The great difficulty in the way of a prompt movement was the procurement of the necessary transports for that service, the Government having none of its own.

The imperfect facilities at Port Tampa made the task most difficult. While the wharf is a good one, the railroad facilities were inadequate, and the failure to label each car with its contents, and the congested state of the post-office where bills of lading were sent, added to the embarrassment of the situation.

Thirty-six transports were gathered at Port Tampa, few of them fitted for such service on account of their lack of sufficient ventilation and space to carry as large a force as was required.

They were, however, the best and all that could be had; and while the description of them furnished prior to their charter showed that they could transport about 23,000 men, with transportation, artillery, horses, quartermaster, commissary, and medical supplies, yet it was found that even the number shipped—about 16,000—was greater than should have been carried. But, fortunately, they arrived at their destination without accident and without any special inconvenience to the troops save that of being crowded.

The first duty for which General Shafter was selected—to make a reconnaissance in force, about 5,000 strong, on the south side of Cuba—was abandoned just as the expedition was prepared to sail from Tampa, on account of the movements of the enemy's fleet.

Major-General Shafter was selected to command the expedition to Santiago.

The following instructions were sent to General Shafter by the Major-General Commanding:

WAR DEPARTMENT,
Washington, May 31, 1898—2.30 a. m.

Maj. Gen. WILLIAM R. SHAFTER, *Tampa, Fla.:*

With the approval of the Secretary of War, you are directed to take your command on transports, proceed under convoy of the Navy to the vicinity of Santiago de Cuba, land your force at such place east or west of that point as your judgment may dictate, under the protection of the Navy, and move it onto the high ground and bluffs overlooking the harbor or into the interior, as shall best enable you to capture or destroy the garrison there, and cover the Navy as it sends its men in small boats to remove torpedoes, or, with the aid of the Navy, capture or destroy the Spanish fleet now reported to be in Santiago Harbor. You will use the utmost energy to accomplish this enterprise, and the Government relies upon your good judgment as to the most judicious use of your command, but desires to impress upon you the importance of accomplishing this object with the least possible delay. You can call to your assistance any of the insurgent forces in that vicinity and make use of such of them as you think advisable to assist you, especially as scouts, guides, et cetera. You are cautioned against putting too much confidence in any persons outside of your own troops. You will take every precaution against ambuscade or surprises or positions that may have been mined or are commanded by the Spanish forces. You will cooperate most earnestly with the naval forces in every way, agreeing beforehand upon a code of signals. Communicate your instructions to Admiral Sampson and Commodore Schley. On completion of this enterprise, unless you receive other orders or deem it advisable to remain in the harbor of Santiago de Cuba, reembark your troops and proceed to the harbor of Pto de Banes, reporting by the most favorable means for further orders and future important service—this with the understanding that your command has not sustained serious loss and that the above harbor is safe for your transports and convoy. When will you sail?

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

On May 30 Major-General Miles left for Tampa to assist in the embarkation of the troops, arriving at that point June 1.

On June 2 he reported that the working force at Tampa had been divided into three reliefs, each working eight hours during the twenty-four; nine ships being loaded at a time.

On June 4 the following dispatch was sent to General Shafter:

ADJUTANT-GENERAL'S OFFICE,
Washington, June 4, 1898, 6.15 p. m.

Major-General SHAFTER, Tampa, Fla.:

Admiral Sampson cables to-day: "*Merrimac* in channel. Cervera, with 4 ships and 2 torpedo boats, in harbor safely bottled up. He urges immediate aid from your troops. He reports 7,000 men intrenched in Juraquacito and Daiquiri; 5,000 at Morron de Cuba; 4,000 at other points; in bay 500, with small Hotchkiss gun. Cervera sent flag of truce opprobiously to exchange prisoners for Naval Constructor Hobson and 7 men who unharmed with him on *Merrimac*, who were taken prisoners, in recognition of their bravery. We are sure Cervera is there."

ALGER, Secretary of War.

On June 5 the following was received from General Shafter:

TAMPA, FLA., June 4-5, 1898—6.32 a. m.

ADJUTANT-GENERAL U. S. ARMY, Washington, D. C.:

Replying to your dispatch that President wishes report of the situation, I have to say that everything possible is being done to get away, but delays occur that can not be prevented or foreseen. Siege guns have only been assembled late this evening. They will be loaded on cars to-night and sent to transports early in the morning and the loading rushed. Will begin putting men on to-morrow p. m., if possible, and be ready to start Monday night or Tuesday morning. The last of the troops from Chickamauga are expected to-night. Officers engaged in loading transports have worked night and day. The main cause for delay has been the fact that great quantities of stores have been rushed in promiscuously, and with no facilities to handle or store them. The last ten miles before reaching the wharf is a single track and very narrow place in which to work. The capacity of this place has been greatly exceeded. Could have put the troops on and rushed them off, but not properly equipped, as I know the President wishes them. I will not delay a minute longer than is absolutely necessary to get my command in condition, and start the earliest moment possible.

SHAFTER, Major-General.

The following dispatches will give a brief history of the Santiago campaign:

ADJUTANT-GENERAL'S OFFICE,
Washington, June 5, 1898—12 noon.

Major-General SHAFTER, Tampa, Fla.:

Your telegram of 6.45 this morning shown to the President, with which he expressed his satisfaction, with every confidence that you are doing everything for the best. I would like to have a telegram at 6 o'clock this evening of the situation.

H. C. CORBIN, Adjutant-General.

TAMPA, FLA., June 5, 1898—12.24 p. m.

The SECRETARY OF WAR, Washington, D. C.:

This expedition has been delayed through no fault of anyone connected with it. It contains the principal part of the Army, which for intelligence and efficiency is not exceeded by any body of troops on earth. It contains fourteen of the best conditioned regiments of volunteers, the last of which arrived this morning. Yet these have never been under fire. Between 30 and 40 per cent are undrilled, and in one regiment over 300 men had never fired a gun. I request ample protection at all times for this command from the Navy. This enterprise is so important that I desire to go with this army corps or to immediately organize another and go with it to join this and capture position number 2. Now that the military is about to be used, I believe it should be continued with every energy, making the most judicious disposition of it to accomplish the desired result.

MILES,

Major-General Commanding Army.

TAMPA, FLA., June 6, 1898—2.37 p. m.

SECRETARY OF WAR, *Washington, D. C.:*

In telegram sent you yesterday morning please substitute words "while on sea" for "at all times" after word "protection."

MILES,
Major-General Commanding.

NAVY DEPARTMENT, *Washington, June 6, 1898.*

SIR: This Department has received from Admiral Sampson, off Santiago de Cuba, a telegram from which the following is an extract: "Very important we should know immediately whether the army expedition has sailed for Santiago and its number of vessels." You are respectfully requested to give information on the above points as soon as practicable, in order that it may be communicated to the admiral. It is respectfully urged that the expedition should get off as soon as possible. The naval force is all ready to convoy it.

Very respectfully,

CHAS. H. ALLEN,
Acting Secretary.

The Honorable the SECRETARY OF WAR.

TAMPA, FLA., June 6, 1898—11.40 p. m.

HON. R. A. ALGER,
Secretary of War, Washington, D. C.:

Troops have been marching on board to-day and will continue all night. General Shafter hopes to sail to-morrow night or next day. There is siege artillery here and more will arrive before No. 2 can be ready. There should be a few regiments well equipped at Camp Alger.

MILES, *Major-General.*

WAR DEPARTMENT, *Washington, June 7, 1898.*

To Major-General SHAFTER or Major-General MILES,
Tampa, Fla.:

Secretary of Navy has received this dispatch from Sampson to-day: "Bombarded forts at Santiago 7.30 to-day, June 6. Have silenced works quickly without injury of any kind, though stationed within 3,000 yards. If 10,000 men were here, city and fleet would be ours within forty-eight hours. Every consideration demands immediate army movement. If delayed, city will be defended more strongly by guns taken from the fleet."

R. A. ALGER, *Secretary of War.*

WASHINGTON, June 7, 1898.

Major-General SHAFTER, *Port Tampa, Fla.:*

Since telegraphing you, an hour since, the President directs you to sail at once with what force you have ready.

R. A. ALGER, *Secretary of War.*

TAMPA, FLA., June 7, 1898—9 p. m.

SECRETARY OF WAR, *Washington:*

I will sail to-morrow morning. Steam can not be gotten up earlier. There is loaded to-night one division of infantry (9 regiments), 16 companies of dismounted cavalry, 4 light batteries, 2 siege batteries artillery, 2 companies of engineers, and the troops from Mobile. I will try and get on the rest of the cavalry and another division of regular infantry by morning. I will sail then with whatever I have on board.

SHAFTER, *Major-General.*

EXECUTIVE MANSION, *Washington, June 7, 1898.*

General SHAFTER, *Tampa, Fla.:*

About how many men will you have ready by morning?

CORBIN, *Adjutant-General.*

PORT TAMPA, FLA. (direct), June 7, 1898--10.15 p. m.

Adjutant-General CORBIN:

I expect to have 834 officers 16,154 men on transports by daylight and will sail at that hour. Will wire particulars before starting.

SHAFTER.

TAMPA, FLA., June 7, 1898--9.54 p. m.

The PRESIDENT, *Washington*:

From the Commanding General down to the drummer boys, everyone is impatient to go, and annoyed at the delay. The last of the troops from Chickamauga arrived this morning and have been equipped and hurried to the steamers. Feel confident they will all do their best to carry out the wishes and directions of the President.

MILES, *Major-General Commanding*.

WAR DEPARTMENT,
Washington, D. C., June 8, 1898.

Major-General SHAFTER, *Tampa, Fla.*:

Wait until you get further orders before you sail. Answer quick.

R. A. ALGER, *Secretary of War*.

WAR DEPARTMENT,
Washington, D. C., June 8, 1898.

Major-General MILES, *Port Tampa, Fla.*:

I have sent the following telegram to Major-General Shafter: "Wait until you get further orders before you sail. Answer quick."

R. A. ALGER, *Secretary of War*.

TAMPA, FLA., June 8, 1898--4.32 p. m.

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

Your dispatch of to-day received.

MILES,
Major-General Commanding Army.

PORT TAMPA, FLA., June 8, 1898--4.06 p. m.

R. A. ALGER, *Secretary of War, Washington, D. C.*:

Message received. Vessels are in the stream, but will be able to stop them before reaching the Gulf.

SHAFTER, *Major-General*.

WAR DEPARTMENT,
Washington, June 8, 1898.

Major-General MILES, *Tampa, Fla.*:

The reason for countermanding order you will find in the following. The order was given at the request of the Navy Department by direction of the President:

"KEY WEST, June 8.

"Spanish armor cruiser, second class, and Spanish torpedo-boat destroyer seen by Esqle, Nicholas Channel, Cuba. Destroy convoy. Detail follow. REMEX."

"KEY WEST, June 8.

"Last cipher just came by *Resolute*, just arrived; was pursued by two vessels, Nicholas Channel, Cuba, last night. Shall I order *Indiana* and all available cruisers to coast of Cuba? More detail to follow. REMEX."

R. A. ALGER, *Secretary of War*.

TAMPA, FLA., June 8, 1898—11.48 p. m.

HON. SECRETARY OF WAR, *Washington, D. C.*:

If that report is true, those Spanish vessels could be within six hours of the loaded transports now, and there to-morrow. Have ample measures been taken by the navy to insure their safety?

MILES, *Commanding.*

PORT TAMPA, FLA., June 8, 1898—5.03 p. m.

HON. SECRETARY OF WAR, *Washington, D. C.*:

Ships commenced moving at 4 o'clock yesterday. They have been moving out during night and morning as loaded. Your dispatch just received. Ships can be recalled and await orders.

MILES, *Commanding.*

HEADQUARTERS OF THE ARMY,
Tampa, Fla., June 9, 1898—6.50 p. m.

SECRETARY OF WAR, *Washington, D. C.*:

Think it would be well to announce that the army got on board transports and started, as they did yesterday. Say nothing about its being recalled, but let our naval vessels go over, the course that our transports would have gone over, with the hope of finding those Spanish ships. Does not the presence of Spanish war vessels in Cuban waters render it extremely hazardous to send troops on transports until they are captured, destroyed, or driven away? And, under the circumstances, is it expected that I shall organize expedition number 2? Arrangements had been partly made before the presence of the Spanish ships was announced.

MILES,
Major-General Commanding Army.

WAR DEPARTMENT, June 9, 1898.

Major-General MILES, *Tampa, Fla.*:

The President directs me to say that no change of plan will be made; that Expedition No. 2 must be organized as rapidly as possible. We are looking for transports and are satisfied the Navy will take care of that problem. Give nothing out.

R. A. ALGER, *Secretary of War.*

TAMPA, FLA., June 9, 1898—2.45 p. m.

SECRETARY OF WAR, *Washington, D. C.*:

It seems that it is a naval problem yet unsolved, and it might be advisable for the command now on board transports to have the protection of the entire Navy to convey it to number 1, number 2, or Nuevitas, or, if this is considered too hazardous, then keep the troops in healthful camps, as they are now, and assist the Navy to destroy the Spanish fleet. There are here 25 good steamers that could be used to carry water, coal, and supplies, guns, revolving cannon, and mortars, etc., and they could be added to the force of the Navy. It seems strange to be suggesting that the Army assist the Navy in this way, but I am sure we would receive most loyal support when the waters are safe for crossing with the Army.

MILES,
Major-General Commanding Army.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 9, 1898.

Major-General SHAFER, *Tampa, Fla.*:

Should you not sail until Monday, Secretary War desires to know whether you will keep your troops on board or disembark them.

H. C. CORBIN, *Adjutant-General.*

PORT TAMPA, FLA., June 9, 1898—9.38 p. m.

ADJUTANT-GENERAL U. S. ARMY, *Washington, D. C.*:

As the ships are lying it is impracticable to disembark the men. The general officers in command are all unanimous in this opinion. They will be taken off, however, in detachments for exercise. There is no place in the vicinity where they can be camped with any degree of comfort.

SHAFER,
Major-General, U. S. Volunteers.

The following communication was received from Navy Department on date named:

NAVY DEPARTMENT, *Washington, June 9, 1898.*

The Honorable the SECRETARY OF WAR.

SIR: Referring to the expedition destined to Santiago de Cuba, I have the honor to inform you that it is expected that the convoy of men-of-war, reenforced by two armored ships from Admiral Sampson's fleet, will be coaled and ready to start for Santiago de Cuba by the evening of Monday, the 13th instant, or by the morning of the following day, without regard to the Spanish ships.

The board is of opinion that the army transports should not move from the vicinity of Tampa until about twenty hours before the naval convoy will be coaled and ready to start. This latter time, though estimated as above, can not be closely fixed to-day, but probably can be by to-morrow evening.

Very respectfully,

CHAS. H. ALLEN,
Acting Secretary.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 9, 1898—9.30 p. m.

Major-General MILES, *Tampa Fla.:*

Following from the Acting Secretary Navy sent you for your information and you will transmit it to General Shafter:

"Referring to the expedition destined to Santiago de Cuba, I have the honor to inform you that it is expected that the convoy men-of-war, reenforced by two armored ships from Admiral Sampson's fleet, will be coaled and ready to start for Santiago by the evening of Monday, the 13th instant, or by the morning of the following day, without regard to the Spanish ships. The board is of opinion that army transports should not move from the vicinity of Tampa until about twenty hours before the naval convoy will be coaled and ready to start. This latter time, though estimated as above, can not be closely fixed to-day, but probably can be by to-morrow evening."

Any further information concerning the movement of vessels for convoy will be sent you the moment it is received.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, June 12, 1898—11 a. m.

Maj. Gen. W. B. SHAFTER, *Port Tampa, Fla.:*

The following is sent you for your information and guidance: Commodore Remy, commandant of the naval base at Key West, has been directed to reassemble and coal as soon as possible the naval force which was recently designated to convoy the army transports in which is embarked the military expedition for Santiago de Cuba. As soon as Commodore Remy reports when the convoy will be coaled and ready, his instructions are to send it to meet the army transports in the passage or strait between Rebecca Shoal and the Dry Tortugas, and considerable time would be saved if the army transports could leave Tampa about eighteen hours before the Key West division of the convoy reaches the neighborhood of Rebecca Shoal. The date and hour at which the Key West division of the convoy will reach the vicinity of Rebecca Shoal can not be exactly fixed, but you will be informed of it as soon as practicable.

You will place yourself in communication with Commodore Remy and arrange to meet convoy as herein suggested, making close connection. Acknowledge receipt.

By order Secretary War.

H. C. CORBIN, *Adjutant-General.*

WAR DEPARTMENT, *Washington, June 12, 1898.*

Major-General SHAFTER, *Port Tampa, Fla.:*

Having reference to telegram of this morning, the Secretary of War now directs me to inform you that the *Indiana* and other ships forming the convoy will meet the transports at Rebecca Shoal and proceed together to destination. You should reach the shoal not later than to-morrow afternoon. Confer freely with Commodore Remy.

H. C. CORBIN, *Adjutant-General.*

TAMPA, FLA., June 12, 1898—7.18 p. m.

ADJUTANT-GENERAL U. S. ARMY, *Washington, D. C.:*

4.30 p. m. Your dispatch in reference to starting delivered at 3 p. m. to-day. Have consulted with senior naval officer present, who says we must have daylight to get down to lower bay. Will start the transports at daylight to-morrow, and with good luck will meet convoy from Key West before Wednesday noon.

SHAFTER,
Major-General, U. S. Volunteers, Commanding.

PORT TAMPA, FLA., June 13, 1898—1.10 p. m.

SECRETARY OF WAR, *Washington, D. C.:*

Steamers are moving out to sea and should be away by 1 o'clock.

MILES, Major-General.

ADJUTANT-GENERAL'S OFFICE,
Washington, D. C. June 14, 1898—11.40 p. m.

Major-General MILES, *Tampa, Fla.:*

Secretary War desires the names of the general officers accompanying General Shafter's expedition.

H. C. CORBIN, *Adjutant-General.*

TAMPA, FLA., June 15, 1898—1.41 p. m.

Gen. H. C. CORBIN,

Adjutant-General, U. S. Army, Washington, D. C.:

In reply to your telegram of yesterday the Major-General Commanding directs me to inform you that the following general officers accompanied General Shafter:

Maj. Gen. Joseph Wheeler, Brig. Gens. J. F. Kent, H. S. Hawkins, S. S. Sumner, J. C. Bates, S. B. M. Young, H. W. Lawton, and A. R. Chaffee. Also Major-General Breckinridge and Brig. Gen. William Ludlow went as inspecting officer and engineer officer from Headquarters Army, respectively.

MICHLER,
Assistant Adjutant-General.

After General Shafter had sailed, the following dispatch was sent to the Major-General Commanding the Army, June 15, the object being to have him fit out the expedition for Porto Rico:

WASHINGTON, D. C., June 15, 1898.

Major-General MILES, *Tampa, Fla.:*

Important business requires your presence here. Report at once.

R. A. ALGER, *Secretary of War.*

TAMPA, FLA., June 16, 1898.

SECRETARY OF WAR, *Washington, D. C.:*

I leave by the first train, 7.25 this evening.

MILES, Major-General Commanding.

KEY WEST, FLA., June 15, 1898.
(Received at Washington 10.55 p. m.)

Captain MONTGOMERY, *Executive Mansion, Washington, D. C.:*

Twenty-one transports and eight convoys off Tortugas 10 this morning, and at same place at sundown.

SAWYER, *Censor.*

PLAYA DEL ESTE, VIA HAITI.
(Received Washington June 22, 1898, 6.22 p. m.)

SECRETARY OF WAR, Washington, D. C.:

Off Daiquiri, Cuba, June 22, 1898.—Landing at Daiquiri this morning successful. Very little, if any, resistance.

SHAFTER.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 21, 1898.

Major-General SHAFTER, Santiago de Cuba:

Secretary War directs that the transports that went with you be returned to Tampa for reenforcements under same convoy that conducted you to your present station, unless you think it unsafe to send it. Also report as to your needs. Proposed to send you auxiliary cruisers *Yale* and *Harvard* sailing from Newport News with reenforcements.

H. C. CORBIN, *Adjutant-General*.

WAR DEPARTMENT, Washington, June 21, 1898.

The honorable the SECRETARY OF THE NAVY.

SIR: I have the honor to inclose herewith copy of a telegram just sent to Major-General Shafter, Santiago de Cuba.

Very respectfully,

R. A. ALGER, *Secretary of War*.
By H. C. CORBIN, *Adjutant-General*.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 23, 1898.

Major-General SHAFTER, Santiago de Cuba:

Secretary of War directs such of the transports as can be spared be returned to Tampa soon as convenient under convoy of the Navy. Please cable number and names that can be returned and time of departure. Should it be deemed best to not unload all supplies not perishable on ships, the same can be left in them until next voyage.

By command Major-General Miles:

H. C. CORBIN, *Adjutant-General*.

PLAYA DEL ESTE, VIA HAITI.
(Received at Washington July 2, 1898—1.21 a. m.)

ADJUTANT-GENERAL, Washington:

Siboney, I.—Cable received. Colonel Humphrey has been ordered to return as many transports as possible at once.

W. R. SHAFTER,
Major-General, U. S. Volunteers, Fifth Corps.

HEADQUARTERS OF THE ARMY,
Washington, D. C., June 24, 1898.

SIR: I have the honor to submit the following:

With the capture of Santiago de Cuba it is expected we will have several thousand Spanish prisoners, and with the capture of the second objective position, now under consideration, it is expected we will add to the number, making, it is hoped, in the aggregate at least 30,000 prisoners.

After the capture of the position next after Santiago de Cuba it would be, in my judgment, advisable to take some deep-water harbors on the northern coast of Cuba, which would be advisable, not only for our Army, but also for the Navy, as safe ports for our transports, supply ships, and naval vessels between Key West and Porto Rico. It is also important that we should select some point at which to disembark our mounted troops and light artillery, with which our Government is well supplied. We will have, in a few weeks, upward of 15,000 cavalry. This force, with the light artillery and a small body of infantry, will make a most formidable army corps with which to conduct a campaign in the interior of Cuba.

The most available point, it appears to me, would be the harbor of Nuevitas, which has 28½ feet of water. From there the command could move to Puerto Principe, one of the principal cities of the Island of Cuba. Using that as a base, it could move through the rolling country, which is reported to be free from yellow fever, to Moron and Taguayabon, and thence to the Villa Clara, or, by a more southern route, from Puerto Principe to Ciego de Avila, thence to Spiritus, and thence to Villa Clara. A road could be built at the rate of 5 miles per day as that army corps marches; also, we would find two railroad bases between Puerto Principe and Villa Clara.

To move the mounted troops over from Florida to Cuba and make this march would undoubtedly consume the time up to nearly the 30th of September.

This army corps would also have the assistance of all the available forces of Garcia and Gomez, and would by that time be occupying practically two-thirds of the Island of Cuba.

If no serious force was encountered, this army corps could continue its march to the south side of Havana. If a large force of Spanish troops, sufficient to check its march was moved to the vicinity of Villa Clara, then the entire army with which we propose to invade Cuba could be moved between the forces at Villa Clara and Havana, dividing the Spanish forces and defeating them in detail.

I make this suggestion as having three advantages: First, we could employ at reasonable compensation such prisoners as desired occupation in road building; second, we could move into the interior of Cuba our large cavalry command without serious molestation; third, we would be operating during the rainy or sickly season in the most healthful parts of Cuba, practically free from yellow fever, and at the same time be occupying a large portion of the enemy's territory.

If this proposition does not meet with favor, then, after the capture of Santiago de Cuba and other places to the east, we could move the entire force to the west of Havana and conduct the campaign from the deep harbors on that coast. My judgment, however, is decidedly in favor of the first plan of campaign.

Before reaching Villa Clara we would undoubtedly have upward of 50,000 prisoners, and if we could, by judicious, humane treatment, use them in a way that would be advantageous to themselves as well as to our interests, I think it would be advisable. There would be one great danger in moving them to our own territory and establishing a large camp of prisoners, and that is that they would bring the germs of disease with them and spread them among our own people, as many Americans would have to be employed on the ships and railroads, together with the guards necessary to control them.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

THE SECRETARY OF WAR.

This plan of campaign was not approved.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington, D. C., June 25, 1898, 2.45 p. m.)

ADJUTANT-GENERAL U. S. ARMY, Washington, D. C.:

Daiquiri, 23.—Had very fine voyage. Lost less than 50 animals; 6 or 8 to-day. Lost more putting them through the surf to land than on transports. Command as healthy as when we left. Eighty men sick. Only deaths, 2 men drowned in landing. Landings difficult. Coast quite similar to that in vicinity of San Francisco and covered with dense growth of bushes. Landing at Daiquiri unopposed. All points occupied by Spanish troops heavily bombarded by navy to clear them out. Sent troops toward Santiago and occupied Juraguasito, a naturally strong place, this morning, Spanish troops retreating as soon as our advance was known. Had no mounted troops or could have captured them, about 600 all told. Railroad from there in. Have cars and engine in possession. With assistance of navy disembarked 6,000 men yesterday and as many more to-day. Will get all troops off to-morrow, including light artillery and greater portion of pack train, probably all of it, with some of the wagons. Animals have to be jumped to the water and towed ashore. Had consultation with Generals Garcia, Rader, and Castillo 1 p. m. of 20th, 20 miles west of Santiago. These officers were unanimously of the opinion that landing should be made east of Santiago. I had come to the same conclusion.

General Garcia promises to join me at Juraguasito to-morrow with between three and four thousand men, who will be brought from west of Santiago by ships of the Navy to Juraguasito and there disembarked. This will give us between four and five thousand Cubans and leave one thousand with General Rabi to threaten Santiago from the west. General Kent's division is being disembarked this afternoon at Juraguasito and will be continued during the night. The assistance of the Navy has been of the greatest benefit and enthusiastically given. Without them I could

not have landed in ten days, and perhaps not at all, as I believe I should have lost so many boats in the surf. At present want nothing; weather has been good; no rain on land and prospects for fair weather.

SHAFTER,
Major-General, United States Army, Commanding.

PLAYA, June 25, 1898.

(Received at Washington, D. C., June 25, 1898—11.57 a. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Daiquiri, 24.—Two or three lighters and a steam tug are an imperative necessity here. We are absolutely dependent on the little steam tug *Laura*. Without her we could hardly get rations ashore as fast as they can be consumed. There should be no delay in furnishing these vessels.

SHAFTER,
Major-General Commanding.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 25, 1898.

Major-General SHAFTER, *Playa del Este, Cuba:*

Every effort is being put forth to get you two or three lighters as asked for in your telegram just received.

H. C. CORBIN, *Adjutant-General.*

PLAYA (Received at Washington, June 25, 1898—1.17 p. m.).

ADJUTANT-GENERAL U. S. ARMY:

Daiquiri, 24.—In pushing out, to occupy good position near Sevilla to wait and intrench until supplies and artillery could be landed, the Fourteenth and Tenth Cavalry and Wood's regiment had a skirmish; enemy was driven from his position, and General Wheeler reports he now occupies their ground. Wounded: Major Bell, Captain Knox, Captain Wainwright, Lieutenant Byram, First Cavalry, and a number of men; above names only given. Lighters and steam tugs asked for this morning should be sent at once.

SHAFTER, *Commanding.*

PLAYA, June 25, 1898.

(Received at Washington 11.58 a. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Daiquiri, 24.—Further news from General Wheeler places our loss in this morning's affair about 10 killed and 40 wounded. Captain Capron, First United States Volunteer Cavalry, killed. Wounded: Major Brodie, Captain McClintock, and Lieutenant Thomas, First United States Volunteer Cavalry; Major Bell, Captain Knox, and Lieutenant Byram, First United States Cavalry; Captain Knox seriously. Captain Wainwright formerly reported wounded is uninjured; the names of the others killed and wounded not yet known. The Spaniards occupied a very strong intrenched position on a high hill, and firing lasted about an hour, and the enemy was driven from his position, which is now occupied by our troops about 1½ miles from Sevilla. The enemy has retired toward Santiago de Cuba.

SHAFTER, *Major-General.*

WAR DEPARTMENT, June 25, 1898.

Major-General SHAFTER, *Commanding, etc.:*

The President directs me to send his thanks to you and your army for the gallant action of yesterday, which I gladly do.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington, June 28, 1898—9.05 p. m.)

Honorable SECRETARY OF WAR, *Washington:*

Daiquiri, Cuba, June 26, 1898.—Sincere thanks to the President for his congratulations.

SHAFTER, *Major-General.*

WAR DEPARTMENT, *Washington, June 26, 1898.*

SIR: By direction of the President an expedition will be organized with the least possible delay, under the immediate command of Major-General Brooke, United States Army, consisting of three divisions taken from the troops best equipped in the First and Third Army Corps and two divisions from the Fourth Army Corps, for movement and operation against the enemy in Cuba and Porto Rico. The command under Major-General Shafter, or such part thereof as can be spared from the work now in hand, will join the foregoing expedition, and you will command the forces thus united in person.

Transports for this service will be assembled at Tampa with the least possible delay. The naval forces will furnish convoy and cooperate with you in accomplishing the object in view. You will place yourself in close touch with the senior officer of the Navy in those waters, with the view to harmonious and forceful action.

Estimates will be made by you immediately on the several staff departments for the necessary supplies and subsistence, such estimates to be submitted to the Secretary of War.

For the information of the President, copies of all orders and instructions given by you from time to time will be forwarded on the day of their issue to the Adjutant-General of the Army. Also daily reports of the state and condition of your command will be made to the Secretary of War direct.

It is important that immediate preparation be made for this movement, and, when ready, report to this Department for further instructions.

Very respectfully,

R. A. ALGER,
Secretary of War.

Maj. Gen. NELSON A. MILES,
United States Army, Washington.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 25, 1898—4.45 p. m.

Major-General SHAFTER, *Playa del Este, Cuba:*

Secretary of War directs as many of your transports as you can spare shall return at once with the convoy to Tampa for more troops, provisions, and transportation. The convoy has been ordered to return at once for reinforcements for you. Return the wounded on ships that are able to travel, using preferably the *Harvard* and *Fale*, returning to Newport News. Advise Department of action taken.

By command Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

The dispatches concerning lighters are given in the report of the Quartermaster-General.

ADJUTANT-GENERAL'S OFFICE,
Washington, June 26, 1898—11 a. m.

Major-General SHAFTER, *Playa del Este, Cuba.*

Secretary of War directs that the graves of the dead be marked, so that there will be no question of identity or recovering the bodies when they can be shipped to their friends.

H. C. CORBIN, *Adjutant-General.*

WASHINGTON, *June 26, 1898.*

Maj. Gen. W. R. SHAFTER, *Commanding United States forces in Cuba:*

In burying the dead, be sure and detail a competent officer to have a map made giving resting place of each, so that friends can find the remains of their loved ones.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.
(Received at Washington June 28, 1898—9 p. m.)

Hon. RUSSELL A. ALGER, *Secretary of War, Washington.*

Off Siboney, Cuba, June 27.—The graves of the dead are marked, so that there will be no mistake in identification. There was no embalming. Chief surgeon says it is impossible to do so. Caskets can be taken to graves, as there is a wagon road from this place to them. Steel caskets could be brought here and bodies put in them, but professional undertaker must do it. General Duffield's command ashore. I will not act hastily, though I believe I can take the place within forty-eight hours, but I fear at considerable loss of life. There is no necessity for haste, as we are growing stronger and they weaker every day. The health of the command is reported to me by the surgeon as remarkable, outside of the wounded. There are to-day less than

150 men sick; so far no wounded have died and but two men of disease since leaving Tampa. Am very glad to know that tugs and lighters are on the way. Hospital steamer *Relief* is all that we need at present. Have temporarily taken two transports for this service. Wired yesterday would like First Cavalry horses and Wood's with squadrons of those regiments left at Tampa, but they should come at once with them (I do not think the enemy could escape); besides, they can be used to gather in some small bodies of troops in the interior. Your son and young Corbin well. Your son urged me to let him go to the front as a volunteer, which I did, but have assigned him to General Duffield. No rain yet. Roads dusty.

SHAFTER,
Major-General U. S. Volunteers, Commanding.

WAR DEPARTMENT, *Washington, June 27, 1898.*

Major-General SHAFTER, *Cuba:*

Have you landed the siege guns?

(Enah.)

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.
(Received at Washington June 29, 1898, 9.37 p. m.)

SECRETARY OF WAR, *Washington:*

Siboney, 28.—I have not yet unloaded the siege guns, but will do so as soon as I can. I do not intend to take them to the front until we are stopped or need them. It is going to be a very difficult undertaking to get them up, and if attempted now would block the road. I have four light batteries at the front, and they are heavy enough to overcome anything the Spaniards have. If we have to besiege the town I will get the guns up. The advance picket is now within 2½ miles of Santiago. Officers making reconnoissances were within 1½ miles to-day and met with no opposition.

SHAFTER, *Major-General, Commanding.*

PLAYA DEL ESTE, VIA HAITI.
(Received at Washington June 29, 1898, 9.40 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Headquarters Fifth Army Corps, 3 miles from Santiago, Cuba, 29.—Advance pickets within a mile and a half of Santiago. No opposition. Spaniards have evidently withdrawn to immediate vicinity of the town. Expect to put division on Caney road between that place and Santiago day after to-morrow, and will also advance on Sevilla road to San Juan River, and possibly beyond. General Garcia, with 3,000 men, will take railroad north of Santiago at the same time to prevent Pando reaching city.

SHAFTER, *Major-General, Commanding.*

HEADQUARTERS OF THE ARMY,
Washington, D. C., June 30, 1898.

The honorable the SECRETARY OF WAR.

SIR: I have the honor to report, in accordance with your instructions dated June 28, 1898, that part of the First Division of the Fourth Corps left Tampa this morning for Santiago de Cuba, and the remainder will follow as soon as transports are furnished. Six light batteries, namely, two of Third, Fourth, and Fifth, respectively, left with the same transports for the same place under command of General Randolph, U. S. Volunteers.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

HEADQUARTERS OF THE ARMY,
Washington, June 30, 1898.

The honorable the SECRETARY OF WAR.

SIR: In reply to your note, I have the honor to inform you that the First Illinois Regiment, consisting of 1,200 men, sailed to-day from Port Tampa; and also that 200,000 rations in bulk were shipped.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

PLAYA, July 1, 1898.

(Received at Washington July 1, 1898—9.34 a. m.)

SECRETARY OF WAR, *Washington*:

Camp near Sevilla, Cuba, 1.—Action now going on, but firing only light and desultory. Began on the right near Caney—Lawton's division. He will move on the northeast part of the town of Santiago. Will keep you continually advised of progress.

SHAFTER, *Major-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 1, 1898.)

ADJUTANT-GENERAL'S OFFICE, U. S. ARMY, *Washington*:

Siboney.—Had a very heavy engagement to-day which lasted from 8 a. m. till sundown. We have carried their outer works and are now in possession of them. There is now about three-quarters of a mile of open country between my lines and city. By morning troops will be intrenched and considerable augmentation of forces will be there. General Lawton's division and General Bates's brigade, which have been engaged all day in carrying El Caney, which was accomplished at 4 p. m., will be in line and in front of Santiago during the night. I regret to say that our casualties will be above 400. Of these not many are killed.

W. R. SHAFTER, *Major-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 2, 1898—1.12 a. m.)

ADJUTANT-GENERAL, *Washington*:

Headquarters near Santiago de Cuba, 1.—I fear I have underestimated to-day's casualties. A large and thoroughly equipped hospital ship should be sent here at once. Chief surgeon says he has use for 40 more medical officers. Ship must bring launch and boat for conveying wounded from.

W. R. SHAFTER,
Major-General, Fifth Corps.ADJUTANT-GENERAL'S OFFICE,
Washington, July 2, 1898.

General SHAFTER:

The Secretary of War directs me to say that hospital ship and medical officers will be sent you as soon as possible; probably leave to-day or to-morrow.

H. C. CORBIN, *Adjutant-General*.ADJUTANT-GENERAL'S OFFICE,
Washington, July 2, 1898.

General SHAFTER:

Sorry the losses are so heavy, but am confident of your ultimate complete success.

H. C. CORBIN, *Adjutant-General*.ADJUTANT-GENERAL'S OFFICE,
Washington, July 2, 1898.

General SHAFTER:

The Secretary of War suggests that probably the Navy can help you in caring for the wounded. Of course, you can utilize any of our own transports for hospital purposes.

H. C. CORBIN, *Adjutant-General*.HEADQUARTERS OF THE ARMY,
Washington, D. C., July 2, 1898.

The honorable the SECRETARY OF WAR.

SIR: As it may be several days before a convoy can reach Key West to accompany additional transports to Santiago de Cuba, and as it will be several days before a sufficient number of transports can reach Tampa to take the remainder of General Snyder's division, I think the present a favorable opportunity to take and occupy the Isle of Pines, for the following reasons:

First. It will stop the accumulation on that island of supplies for the Spaniards, and the supplies already there can be captured.

Second. It will be easily taken when, as is now the case, the attention of the enemy is turned to Havana, Santiago, and Porto Rico.

Third. It is said to have the most delightful climate in the West Indies, being entirely free from yellow fever. It can be made extremely useful for the establishment of a hospital and a camp of prisoners, and also, eventually, as a base for supplying the Cubans, and, possibly, for the cavalry operations on the main island of Cuba.

I think the one steamer now at Tampa can, with a battery of artillery and one regiment of infantry, take the island, land from two to six months' supplies, and return to Tampa inside of ten days, when the steamer would be ready to be used for any future military purpose.

Very respectfully,

NELSON A. MILES,
Major-General Commanding.

WAR DEPARTMENT, Washington, July 1, 1898.

Maj. Gen. NELSON A. MILES,
United States Army, Washington, D. C.

SIR: In reply to your communication of this date, that a battery of artillery and a regiment of infantry be sent to take the Isle of Pines, I have the honor to inform you that this is not approved by the President.

Very respectfully,

R. A. ALGER, Secretary of War.

WAR DEPARTMENT, Washington, July 2, 1898.

For the COMMISSARY-GENERAL OF SUBSISTENCE:

The Secretary of War directs you to arrange for a supply of food for prisoners and indigent citizens that may come under control of Maj. Gen. W. R. Shafter. To this end one large ship containing not less than 1,500 tons should be provided at the earliest possible day.

R. A. ALGER, Secretary of War.

KEY WEST, FLA., July 2, 1898.

(Received Washington 12.50 a. m.)

Captain MONTGOMERY, Washington:

Following just received: "Cervera has been ordered to shell the town when Americans get possession. All foreign consuls have been notified to retire at that time to place of safety outside of city." Inform General Greely.

SAWYER.

EXECUTIVE MANSION,

Washington, July 3, 1898—1.56 a. m.

Major-General SHAFTER, Playa del Este:

(To be forwarded at once to headquarters in the field.)

The following is just received—midnight—from sources unofficial: "Cervera has been ordered to shell the town (Santiago) when Americans get possession. All foreign consuls have been notified to retire at that time to places of safety outside of city." This information may or may not be correct, but is sent for your consideration. We are awaiting with intense anxiety tidings of to-day.

R. A. ALGER, Secretary of War.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 3, 1898—11.44 a. m.)

The SECRETARY OF WAR, Washington:

Camp near Sevilla, Cuba, 3.—We have the town well invested on the north and east, but with a very thin line. Upon approaching it we find it of such a character and the defenses so strong it will be impossible to carry it by storm with my present force, and I am seriously considering withdrawing about 5 miles and taking up a new position on the high ground between the San Juan River and Siboney, with our left at Sardinero, so as to get our supplies to a large extent by means of the railroad,

which we can use, having engines and cars at Siboney. Our losses up to date will aggregate a thousand, but list has not yet been made. But little sickness outside of exhaustion from intense heat and exertion of the battle of the day before yesterday and the almost constant fire which is kept up on the trenches. Wagon road to the rear is kept up with some difficulty on account of rains, but I will be able to use it for the present. General Wheeler is seriously ill and will probably have to go to the rear to-day. General Young also very ill, confined to his bed. General Hawkins slightly wounded in foot during sortie enemy made last night, which was handsomely repulsed. The behavior of the regular troops was magnificent. I am urging Admiral Sampson to attempt to force the entrance of the harbor and will have a consultation with him this morning. He is coming to the front to see me. I have been unable to be out during the heat of the day for four days, but am retaining the command. General Garcia reported he holds the railroad from Santiago to San Luis and has burned a bridge and removed some rails; also that General Pando has arrived at Palma, and that the French consul with about 400 French citizens came into his line yesterday from Santiago. Have directed him to treat them with every courtesy possible.

SHAFTER, *Major-General.*

WAR DEPARTMENT, *Washington, July 3, 1898—12.10 p. m.*

Major-General SHAFTER, *Playa del Este, Cuba:*

Your first dispatch received. Of course, you can judge the situation better than we can at this end of the line. If, however, you could hold your present position, especially San Juan heights, the effect upon the country would be much better than falling back. However, we leave all that matter to you. This is only a suggestion. We shall send you reenforcements at once.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 4, 1898—1.16 a. m.)

The honorable SECRETARY OF WAR, *Washington:*

Headquarters Fifth Corps, 3.—I shall hold my present position.

SHAFTER, *Major-General.*

CUBA, VIA HAITI.

(Received at Washington July 3, 1898—2 p. m.)

ADJUTANT-GENERAL OF THE ARMY, *Washington:*

Camp near Santiago, 3.—Large quantities of underclothing and shoes, enough for entire army, are badly needed.

SHAFTER, *Commanding.*

WAR DEPARTMENT, *July 4, 1898.*

General SHAFTER, *Cuba:*

St. Paul leaves New York Wednesday direct for Santiago with Eighth Ohio, and underclothing, shoes, stockings, and duck suits for your whole army. How are you, Wheeler, Young, and others?

R. A. ALGER, *Secretary of War.*

ADJUTANT GENERAL'S OFFICE,
Washington, July 3, 1898—5 p. m.

Major General SHAFTER, *Playa del Este, Cuba:*

You can have whatever reenforcements you want. Wire what additional troops you desire and they will be sent as rapidly as transports can be secured. In addition to the 2,700 troops now en route from Tampa, the *St. Paul* and *Duchess* will leave Newport News not later than Wednesday, with 3,000 troops of Garretson's brigade; the *St. Louis*, *Yale*, and *Columbia* will sail probably from Charleston, carrying 4,000 more, and others will be sent from Tampa as you may request.

H. C. CORBIN, *Adjutant General.*

WAR DEPARTMENT, *Washington, July 3, 1898.*

General SHAFER,

Commanding United States Forces, Cuba:

We are forwarding reinforcements to you this week. How is your health? Do you think that some one should come to relieve you? Are you going to be able to stand through? What do you think? Be very careful of yourself.

R. A. ALGER, *Secretary of War.*

WAR DEPARTMENT, *Washington, July 3, 1898.*

Major-General SHAFER,

Commanding United States Forces, Cuba:

I waited with the President until 4 o'clock this morning for news from you relative to Saturday's battle. Not a word was received, nor has there been up to this hour, 11 a. m., except an account of the battle of Friday, upon which I congratulate you most heartily. I wish hereafter that you would interrupt all messages that are being sent for the Associated Press and others, and make report at the close of each day, or during the day, if there is anything of special importance at once. The *Relief* left New York yesterday. She has seventeen surgeons on board, and will come to you as quickly as possible.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 3, 1898—7 p. m.)

SECRETARY WAR, *Washington:*

Camp near Santiago, 3.—Lieutenant Allen, Second Cavalry, is just in from my extreme right, which is on the railroad running north from Santiago and which overlooks the entire bay. Lieutenant Allen states that Cervera's fleet was in full view until nearly 10 o'clock this morning, when it proceeded down the bay, and shortly afterwards heavy firing was heard. Duffield, at Siboney, has just telephoned me that Captain Cotton, of the *Harvard*, just sent him word that Admiral Sampson had signaled Cervera had come out and had escaped and that he was in pursuit. The *Harvard* immediately left. The French consul informed General Garcia, into whose lines he went yesterday, that Admiral Cervera had stated that he would run out at 10 o'clock this a. m., and that was the hour Allen witnessed his departure. Cervera told such consul it was better to die fighting than blow up ships in harbor.

SHAFER, *Commanding.*

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 3, 1898—7.31 p. m.)

ADJUTANT-GENERAL UNITED STATES ARMY, *Washington:*

Camp near Santiago, Cuba, 3.—Early this morning I sent in a demand for immediate surrender of Santiago, threatening bombardment to-morrow. Perfect quiet on lines for one hour. From news just received of escape of fleet am satisfied place will be surrendered.

SHAFER, *Commanding.*

PLAYA DEL ESTE, VIA HAITI.

(Received Washington, July 4, 1898.—12.15 a. m.)

General ALGER, *Washington:*

Headquarters Fifth Army Corps, Cuba, 3.—Did not telegraph, as I was too busy looking after things that had to be attended to at once and did not wish to send any news that was not fully confirmed; besides, I was too much excited myself. The Spanish fleet left the harbor this morning and is reported practically destroyed. I demanded surrender of the city at 10 o'clock to-day. At this hour, 4.30 p. m., no reply has been received; perfect quiet along the line; situation has been precarious on account of difficulties of supplying command with food, and tremendous fighting capabilities shown by the enemy from his almost impregnable position.

SHAFER, *Major-General.*

PLAYA, July 4, 1898.

(Received Washington July 4, 1898—9.30 a. m.)

The ADJUTANT-GENERAL'S OFFICE, U. S. ARMY, Washington:

Headquarters Fifth Army Corps, near Santiago. Your telegram inquiring about my health just received. I am still very much exhausted. Eating a little this p. m. for the first time in four days. The good news has inspired everybody. When the news of the disaster of the Spanish fleet reached the front, which was during the period of truce, a regimental band that had managed to keep its instruments on the line, played "The Star-Spangled Banner" and "There will be a hot time in the old town to-night," men cheering from one end of the line to the other. Officers and men, without even shelter tents, have been soaking for five days in the afternoon rains, but all are happy.

SHAFTER,

Major-General, U. S. A.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 4, 1898—5.22 a. m.)

Hon. R. A. ALGER, Secretary of War, Washington:

Headquarters Fifth Army Corps, 3.—The following is my demand for the surrender of the city of Santiago:

"HEADQUARTERS UNITED STATES FORCES,

"Near San Juan River, Cuba, July 3, 1898—8.30 a. m.

"To the Commanding General of the Spanish Forces, Santiago de Cuba:

"SIR: I shall be obliged unless you surrender to shell Santiago de Cuba.

"Please inform the citizens of foreign countries and all women and children that they should leave the city before 10 o'clock to-morrow morning.

"Very respectfully, your obedient servant,

"W. R. SHAFTER,

"Major-General, U. S. Army."

Following is the Spanish reply, with which Colonel Dorst has just returned, at 6.30 p. m.:

"SANTIAGO DE CUBA, July 3, 1898—3 p. m.

"His Excellency the GENERAL COMMANDING FORCES OF UNITED STATES NEAR SAN JUAN RIVER:

"SIR: I have the honor to reply to your communication of to-day, written at 8.30 a. m. and received at 1 p. m., demanding surrender of this city, on the contrary case announcing to me that you will bombard this city and that I advise the foreign women and children that they must leave the city before 10 o'clock to-morrow morning. It is my duty to say to you that this city will not surrender, and that I will inform the foreign consuls and inhabitants of the contents of your message.

"Very respectfully,

"JOSE TORAL,

"Commander in Chief, Fourth Corps."

The British, Portuguese, Chinese, and Norwegian consuls have come to my line with Colonel Dorst. They ask if noncombatants can occupy the town of Caney and railroad points, and ask until 10 o'clock of 5th instant before the city is fired on. They claim that there are between 15,000 and 20,000 people, many of them old, who will leave. They ask if I can supply them with food, which I can not do for want of transportation to Caney, which is 15 miles from my landing. The following is my reply:

SANTIAGO DE CUBA, July 3, 1898.

The COMMANDING GENERAL, SPANISH FORCES:

In consideration of the request of the consul officers in your city, award the delay in carrying out my intention to fire on the city, and in the interest of the poor women and children, who will suffer very greatly by their hasty and enforced departure from the city, I have the honor to announce that I will delay such action solely in their interest until noon on the 5th, provided during the interval your forces make no demonstration whatever upon those of my own.

I am with great respect, your obedient servant,

W. R. SHAFTER,

Major-General, U. S. Volunteers.

I do not know that these extreme measures which I have threatened be justifiable under the circumstances, and I submit the matter for the action of the President.

The little town of Caney will not hold one thousand people and great suffering will be occasioned to our friends, as we must regard the people referred to; and it is now filled with dead and wounded, the dead still unburied. The consuls tell Dorst that there are not to exceed 5,000 troops in the city. I can hold my present line and starve them out, letting the noncombatants come out leisurely as they run out of food, and, will probably be able to give such as are forced out by hunger, food to keep them alive. I await your orders.

W. R. SHAFTER,
Major-General, U. S. Volunteers.

WAR DEPARTMENT, *Washington, July 4, 1898—6.10 a. m.*

Major-General SHAFTER, *Playa del Este, Cuba:*

Telegram containing demand made by you for surrender of Santiago, the Spanish commander's reply thereto, and your reply to him received. While you would be justified in beginning to shell Santiago at expiration of time limit set by you, still under the conditions named in your dispatch and for humanity's sake the postponement of the bombardment to noon of July 5th is approved. Telegraph me this evening just how matters stand. Have you recent news of Hobson?

R. A. ALGER, *Secretary of War.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 4, 1898—3.30 p. m.

Major-General SHAFTER, *Playa del Este, Cuba:*

Being on the ground and knowing all the conditions, the Secretary of War directs you use your own judgment as to how and when you will take the city of Santiago, but for manifest reasons it should be accomplished as speedily as possible.

By command Major-General Miles:

H. C. CORBIN, *Adjutant-General.*

WAR DEPARTMENT,
Washington, July 4, 1898.

General SHAFTER, *Cuba:*

My telegram to-day concerning your future action was not intended in any way to direct your movements. You are the best judge of the situation and all the country has every faith in your wisdom. How are you physically, anyway?

R. A. ALGER, *Secretary of War.*

ADJUTANT-GENERAL'S OFFICE,
Washington July 4, 1898.

Major-General SHAFTER, *Playa del Este, Cuba:*

After conference with the President and the Secretary of War I am directed to say your continued illness brings sorrow and anxiety. In case you are disabled General Wheeler would, of course, succeed to command. His illness, which we also regret, is feared to be so serious as to prevent his assuming command. You must determine whether your condition is such as to require you to relinquish command. If so, and General Wheeler is disabled, you will order the next general officer in rank for duty to succeed you and to take up the work in hand. It is not expected that our forces will make assault until they are ready.

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI,
(Received Washington, July 6, 1898—5.40 a. m.)

ADJUTANT-GENERAL, *Washington:*

Camp near Santiago, Cuba, 5—I am not at present so much ill as exhausted from the intense strain that has been on me for last two months. I am also suffering from an attack of gout, which prevents me from moving about. I have, however, the whole business in my hand, and am managing it through able staff officers. When I do have to give up I will of course follow your order, but I hope to be better soon.

SHAFTER,
Major-General, Commanding.

PLAYA DEL ESTE.

(Received at Washington July 6, 1898—4.13 a.m.)

The ADJUTANT-GENERAL, *Washington*:

Camp near Santiago, 5.—I am just in receipt of a letter from General Soul agreeing to exchange Hobson and men here; to make exchange in the morning. Yesterday he refused my proposition to exchange.

SHAFTER, *Major-General*.

PLAYA DEL ESTE, VIA HAITI,

(Received at Washington July 7, 1898—7 a. m.)

SECRETARY OF WAR, *Washington*:

Headquarters Fifth Army Corps, 6.—Lieutenant Hobson and all his men have just been received safely in exchange for Spanish officer and prisoners taken by us. All are in good health except two seamen convalescent from remittent fever.

SHAFTER, *Major-General Commanding*.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 4, 1898—6.57 a. m.)

ADJUTANT-GENERAL'S OFFICE, *Washington*:

Headquarters Fifth Army Corps, Santiago, 3.—To-night my lines completely surround the town from the bay on the north of the city to a point on the San Juan River on the south. The enemy holds from the west bend of the San Juan River at its mouth up the railroad to the city. General Pando, I find to-night, is some distance away and will not get into Santiago.

SHAFTER, *Commanding*.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 4, 1898, 10.10 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

Camp near Santiago, Cuba, 4.—When am I to expect troops from Tampa? Report just received Pando entered city last night by Cobre road with 5,000 from Holguin. Garcia was especially charged with blockading that road.

SHAFTER, *Commanding*.

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 4, 1898.*General SHAFTER, *Playa del Este, Cuba*:

Reenforcements are being hurried to you. Randolph leaves Key West to-night with fast convoy. He has about 3,500 men, including the six light batteries from Tampa. The *St. Paul* will leave New York Wednesday evening with the Eighth Ohio Volunteers. The *Yale* and *Harvard* will take all the troops they can carry, sailing from Charleston. The day and hour of their departure will be communicated to you as soon as known, probably the 6th.

By command Major-General Miles,

H. C. CORBIN, *Adjutant-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 6, 1898, 7.58 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

7.29 a. m., Siboney 5.—I, yesterday, offered to return to the commanding officer of the Spanish forces a number of wounded officers and men left lying on the battlefield at Caney, the officers to give their paroles and the senior officer for the men. Did this, first, to get rid of the care of them, and second to show the Spanish troops they were not to be killed by us as they had been told by their officers would be the case. This morning I sent Lieutenant Brooke and Dr. Goodfellow with some ambulances to Caney for the wounded and from there conduct them as far as they were to go. Four officers and 24 men were loaded and driven into the inner line of defenses near the city. Large numbers of officers and soldiers gathered about the ambulances and assisted in removing the men. Two companies of troops were drawn up on either side of the road and arms were presented to the officers and

their mounted escort. All of the officers gave their individual parole and desired to return. The men did not wish to go back, but were required to do so. I have just received a letter through a flag of truce from the general of the lines thanking me courteously for giving them their wounded. I am satisfied that it will tend more to create dissatisfaction in the ranks of the enemy than anything I could have done, as the soldiers said we were fighting the church and were going to kill them. There has not been a shot fired on the line to-day. I am simply making my lines stronger and hanging on. I shall expect many deserters, as a number of officers came out with the refugees last night. One of them a colonel and two captains who fought us on the 1st.

SHAFTER, *Major-General.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 5, 1898, 12.53 a. m.)

ADJUTANT-GENERAL, *Washington:*

In the field, near San Juan River, 4.—I regard it as necessary that the navy force an entrance into the harbor of Santiago not later than the 6th instant, and assist in the capture of that place. If they do, I believe the place will surrender without further sacrifice of life.

SHAFTER, *Major-General.*

Please acknowledge receipt to me.

ALLEN.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 5, 1898, 1.10 a. m.)

ADJUTANT-GENERAL, *Washington:*

Headquarters Fifth Army Corps, camp near San Juan River, 4.—If Sampson will force an entrance with all his fleet to the upper bay of Santiago, we can take the city within a few hours. Under these conditions I believe the town will surrender. If the army is to take the place I want 15,000 troops speedily, and it is not certain that they can be landed, as it is getting stormy. Sure and speedy way is through the bay. Am now in position to do my part.

SHAFTER, *Major-General.*

Please acknowledge receipt to me.

ALLEN.

PLAYA DEL ESTE, VIA HAITI,

(Received at Washington July 5, 1898, 7 a. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

1.07 p. m. Headquarters United States forces near San Juan River, Cuba, 4.—I regard as necessary that the navy force an entrance into the harbor Santiago not later than 6th instant, and assist in the capture of the place. If they do, I believe the place will surrender without further sacrifice of life.

SHAFTER,

Major-General, U. S. Volunteers.

ADJUTANT-GENERAL'S OFFICE,

Washington, July 5, 1898, 11.20 a. m.

Major-General SHAFTER, *Playa del Este, Cuba:*

Secretary of War instructs me to say that the President directs that you confer with Admiral Sampson at once for cooperation in taking Santiago. After the fullest exchange of views, you will agree upon the time and manner of attack.

By command Major-General MILES:

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,

Washington, July 5, 1898—5.10 p. m.

Major-General SHAFTER, *Playa del Este, Cuba:*

Your telegram this date has been submitted to the President. After consideration, the Secretary of War directs me to say that it is evident from your several reports that you do not consider your force strong enough to make a successful assault upon

NAVY DEPARTMENT, *July 12, 1898.*

Columbia and Yale, with General Miles and United States troops on board, arrived off Santiago last evening.

Respectfully,

A. L. CROWNINSHIELD,
Chief of Bureau.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 8, 1898—3.10 p. m.

Major-General SHAFTER, *Playa del Este, Cuba:*

Do you recommend the arming of Henry's division, or any other volunteers of your command, with Krag-Jorgensen rifles? We have 1,800,000 rounds of ammunition at Tampa and manufacture 250,000 per day, so that you may know what the supply may be. What are your wishes?

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

PLAYA. (Received at Washington July 9, 1898—9.56 a. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Headquarters Fifth Army Corps.—By all means arm in field Henry's division and the volunteer regiments now here with the Krag-Jorgensen rifle. The use of black powder instantly brought volleys against regiments using Springfield, and was very demoralizing on those regiments.

SHAFTER, *Major-General, Commanding.*

PLAYA, via HAITI, *July 7, 1898.*
(Received Washington 3.32 p. m.)

Hon. R. A. ALGER, *Secretary of War, Washington:*

Under date of 3d instant in long dispatch you say that "nothing has been heard except one account of battle yesterday, upon which I can congratulate you most heartily." Anything further of a congratulatory nature from either the President or yourself failed to reach me, but upon your dispatch of this morning I will announce the President's and your congratulations to the army on its good work of the 1st instant.

SHAFTER, *Major-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 8, 1898.

General SHAFTER, *Playa del Este, Cuba:*

The telegram which it appears you did not receive reads as follows: "The President directs me to say you have the gratitude and thanks of the nation for the brilliant and effective work of your noble army on Friday, July 1. The steady valor and heroism of officers and men thrill the American people with pride. The country mourns the brave men who fell in battle. They have added new names to our roll of heroes.

"R. A. ALGER, *Secretary of War.*"
H. C. CORBIN, *Adjutant-General.*

(Memorandum for the War Department.)

NAVY DEPARTMENT, *Washington, July 9, 1898.*

A telegram received last night from Admiral Sampson states that the lighter and float taken to Santiago by the *Fern* and *Niagara*, for the use of the army in landing stores, were received on July 5.

JOHN D. LONG, *Secretary*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 9, 1898.

Major-General SHAFTER, *Playa del Este, Cuba:*

Navy Department just reports the arrival of one 250-ton double-deck lighter, one open lighter, and one tug at Santiago yesterday. These are for your use.

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 10, 1898—1.30 a. m.)

ADJUTANT-GENERAL, *Washington*:

Camp near Santiago, Cuba, 9.—If two tugs and lighters have arrived, Navy must have them. They have not, up to sundown, reported at Siboney or Daiquiri.

SHAFTER, *Major-General*.WAR DEPARTMENT, *Washington, July 10, 1898.*

Col. JAMES ALLEN,

Signal Corps, Guantanamo (via Hayti), Cuba:

A naval tug and two lighters sent from Key West for use of General Shafter. If at Guantanamo, ask naval authorities to send them to General Shafter. He needs them badly. Lighters have been replaced to Navy at Key West. Answer direct to me.

LUDINGTON, *Quartermaster-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 10, 1898.)

ADJUTANT-GENERAL, *Washington*:

Camp near Santiago, Cuba, 9.—I am much better. Riding all day. Our lines very strong. Gap on right not yet filled, but will be to-morrow, when Randolph's troops front. Unloading to-day.

SHAFTER, *Major-General*.PLAYA DEL ESTE, VIA HAITI, *July 10, 1898.*

(Received at Washington 6.53 p. m.)

Hon. R. A. ALGER, *Washington, D. C.:*

Headquarters War, Santiago, 10.—Thanks for kind message. I think I will satisfy you. Was over anxious yesterday as to health of command, which at present is excellent, but don't like outlook at Siboney. Dr. Pope wired Surgeon-General.

SHAFTER, *Major-General*.WAR DEPARTMENT, *July 10, 1898.*General SHAFTER, *Playa del Este, Cuba:*

Of course you will, as far as possible, prevent anyone from entering any house on account of exposure.

R. A. ALGER,
Secretary of War.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 11, 1898—5 a. m.)

Hon. R. A. ALGER, *Secretary of War, Washington*:

Camp near Santiago, 10.—Hard work is telling on teamsters and packers. Nearly 50 per cent sick. Teams have got to be kept going; will do it with details of soldiers if teamsters can not be sent here.

SHAFTER, *Major-General*.

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 11, 1898—10 a. m.*Major-General SHAFTER, *Playa del Este, Cuba.*

There were 50 stevedores sent on the *St. Paul*. Four hundred laborers should have left Jacksonville yesterday afternoon. Others will be forwarded as rapidly as they can be employed and furnished transportation. This in order to relieve the sick teamsters and laborers as far as possible.

H. C. CORBIN, *Adjutant-General*.

PLAYA. (Received at Washington July 9, 1898—11.18 a. m.)

ADJUTANT-GENERAL, *Washington*:

Camp near Santiago, 8.—Have been visiting the lines all day; I regard them as impregnable against any force the enemy can send. The truce expires at 12 to-morrow, and I expect soon after firing will begin. No assault will be made of advance from our present lines until the Navy comes into the bay. I hope to be able by fire from intrenchments to drive the enemy inside the city.

SHAFTER, *Major-General*.

PLAYA. (Received at Washington July 9, 1898—1 p. m.)

R. A. ALGER, *Secretary of War, Washington*:

Camp near Santiago, Cuba, July 8.—I am just in receipt of a letter from the commandant of Santiago de Cuba, who proposes to march out of the city with arms and baggage and not to be molested until he reaches Holguin, surrendering to the American forces the territory now occupied by him. I have replied that while I have submitted the matter to my home Government I did not think his terms would be accepted. He makes this proposition to avoid danger to the city and useless shedding of blood. This will give me another day to get up troops from Siboney, the first transports of reinforcements having just arrived. In my opinion they will have to surrender unconditionally very soon after I open fire upon them.

W. R. SHAFTER,
Major-General, U. S. Army.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 9, 1898—1.50 p. m.

Major-General SHAFTER, *Playa del Este, Cuba*:

Your telegram setting forth terms in which the enemy will evacuate Santiago has been submitted to the President by the Secretary of War, who instructs me to say that you will accept nothing but an unconditional surrender and should take extra precautions to prevent the enemy's escape.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General*.

PLAYA DEL ESTE, VIA HAITI.
(Received Washington July 9, 1898—9 p. m.)

Hon. SECRETARY OF WAR, *Washington*:

Headquarters Fifth Army Corps, near Santiago.—I forwarded General Toral's proposition to evacuate the town this morning without consulting anyone. Since then I have seen the general officers commanding divisions, who agree with me that it should be accepted. First, it releases at once the harbor. Second, it permits the return of thousands of women, children, and old men, who have left the town fearing bombardment and who are now suffering where they are, though I am doing my best to supply them with food. Third, it saves the great destruction of property which a bombardment would entail, most of which belongs to Cubans and foreign residents. Fourth, it at once relieves the command, while it is in good health, for operations elsewhere. There are now three cases of yellow fever at Siboney in Michigan regiment, and if it gets started no one knows where it will stop. We will lose by this simply some prisoners we do not want and the arms they carry. I believe many of them will desert and return to our lines. I was told by sentinel who deserted last night that 200 men wanted to come, but were afraid our men would fire upon them.

W. R. SHAFTER, *General*.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 9, 1898—11.15 p. m.

Major-General SHAFTER, *Playa del Este, Cuba*:

In reply to your telegram recommending terms of evacuation as proposed by the Spanish commander, after careful consideration by the President and Secretary of War, I am directed to say that you have repeatedly been advised that you would not be expected to make an assault upon the enemy at Santiago until you were prepared to do the work thoroughly. When you are ready this will be done. Your telegram of this morning said your position was impregnable and that you believed the enemy

would yet surrender unconditionally. You have also assured us that you could force their surrender by cutting off the supplies. Under these circumstances your message recommending that Spanish troops be permitted to evacuate and proceed without molestation to Holguin is a great surprise, and is not approved. The responsibility of destruction and distress to the inhabitants rests entirely with the Spanish commander. The Secretary of War orders that when you are strong enough to destroy the enemy and take Santiago that you do it. If you have not force enough it will be dispatched to you at the earliest moment practicable. Reinforcements are on the way, of which you have already been advised. In the meantime nothing is lost by holding the position you now have and which you regard as impregnable. Acknowledge receipt.

By order the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 10, 1898—2.50 p. m.)

ADJUTANT-GENERAL, *Washington*:

Headquarters near Santiago, Cuba, 10.—Telegram of 9th regards to evacuation of Spanish troops received. My position is impregnable against any attack the enemy can bring against me, but I have not yet enough troops to entirely surround the town. The Cuban forces are not to be depended upon for severe fighting. Instructions of the War Department will be carried out to the letter.

SHAFTER, *Major-General*.

SIBONEY, VIA HAITI.

(Received Washington July 10, 1898—5.55 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

Headquarters Fifth Army Corps, 10.—I have just received letter from General Toral declining unconditional surrender. Bombardment by the Army and Navy will begin at as near 4 p. m. to-day as possible.

SHAFTER, *Major-General*.

WAR DEPARTMENT, *July 10, 1898.*

General SHAFTER, *Playa del Este, Santiago, Cuba*:

Should the Spaniards surrender unconditionally and wish to return to Spain, they will be sent back direct at the expense of the United States Government.

R. A. ALGER,
Secretary of War.

HEADQUARTERS FIFTH ARMY CORPS,

Camp near Santiago de Cuba, July 11, 1898.

SIR: With the largely increased forces which have come to me, and the fact that I have your line of retreat securely in my hands, the time seems fitting that I should again demand of your excellency the surrender of Santiago and of your excellency's army. I am authorized to state that should your excellency so desire the Government of the United States will transport the entire command of your excellency to Spain.

I have the honor to be, very respectfully, your obedient servant,

WM. R. SHAFTER,
Major-General Commanding.

HIS EXCELLENCY, COMMANDER IN CHIEF OF THE SPANISH FORCES,
Santiago de Cuba.

SANTIAGO DE CUBA, *July 11, 1898.*

SIR: I have the honor to advise your eminence that your communication of this date is received, and in reply desire to confirm that which I said in my former communication; also to advise you that I have communicated your proposition to the general in chief.

Reiterating my sentiments, I am,
Very respectfully, your servant,

JOSÉ TORAL,
Commander in Chief Fourth Corps, and Military Governor of Santiago.
HIS EXCELLENCY, COMMANDER IN CHIEF OF THE UNITED STATES FORCES,
In Camp at the San Juan.

PLAYA DEL ESTE, VIA HAITI,

(Received Washington July 11, 1898—12.01 a. m.)

ADJUTANT-GENERAL, *Washington*:

Headquarters Fifth Corps, 10.—Enemy opened fire a few minutes past 4 with light guns which were soon silenced by ours. Very little musketry firing and the enemy kept entirely in their trenches. Three men slightly wounded. Will have considerable occasion to force to-morrow, enough to completely block all the roads on the northwest. I am quite well. General Garcia reports enemy evacuated little town called Doscaminos, about 3 miles from Santiago and near the bay. Garcia's force now occupies it. Everything is looking well and men feeling well. Navy fired few shots from the sea near Aguadores; effect was not perceptible.

SHAFTER, *Major-General*.

PLAYA, VIA HAITI.

(Received at Washington July 12, 1898—9.30 a. m.)

ADJUTANT-GENERAL, *Washington*:

Headquarters Fifth Army Corps.—It has been quiet to-day; but little fighting. A flag of truce up since 2 o'clock considering proposition for surrendering now that I have town surrounded on the north. Line was completed at 5 p. m. by General Ludlow right down to the bay. The line is rather thin, but will have it strengthened in the morning by General Henry, who has just arrived at headquarters. Only three or four casualties; no one killed so far as I can learn. Expect to have two of the new batteries in position to-morrow. Great deal of suffering among the people who have gone out of Santiago. Am doing my best to relieve it, but not entirely successful.

SHAFTER, *Major-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received at Washington July 13, 1898—2 a. m.)

ADJUTANT-GENERAL, *Washington*:

The following communication has just been received from the Spanish commander in Santiago:

"SANTIAGO DE CUBA, *July 12*.

"ESTEEMED GENERAL OF THE AMERICAN FORCES.

"SIR: I have the honor to insist upon my proposition to evacuate the Plaza and the territory of the division of Cuba under conditions hereafter stated for the Spanish arms, trusting that your chivalry and sentiment as a soldier will make you appreciate exactly the situation, and therefore must a solution be found that leaves the honor of my troops intact; otherwise you will comprehend that I shall see myself obliged to now make defense as far as my strength will permit. I call the attention of your eminence to the advance of your troops by railroad, the movement of which I suppose you are ignorant, and I take that you will kindly order their return to their position during the time that the armistice is in existence.

"Very respectfully,

"JOSÉ TORAL, *Commander in Chief, etc.*"

Will any modification of the recent order be permitted? And as I have been perfectly satisfied that he can be taken, but if he fights, as we have reason to believe he may, it will be at fearful cost of life, and to stay here with disease threatened may be as great loss from the cause. The suffering of the people who left the town is intense. I can only supply food enough to keep them from starving, and if blue rains continue I do not know how long I can do that.

SHAFTER, *Major-General*.WASHINGTON, D. C., *July 13, 1898—2.14 a. m.*Major-General SHAFTER, *Before Santiago, Cuba, Playa del Este*:

Telegram just received. No modification of former order permitting the Spanish army evacuating Santiago under such conditions as proposed by Toral will be made. The Secretary of the Navy will be consulted at once concerning the ordering of Sampson to assist you.

R. A. ALGER, *Secretary of War*.

PLAYA. (Received Washington July 13, 1898—2.12 p. m.)

ADJUTANT-GENERAL, *Washington*:

Headquarters, near Santiago, 13.—Your telegram saying no modification of orders allowed just received. Have had an interview of an hour and a half with General

Toral and have extended truce until noon to-morrow. Told him that his surrender only will be considered, and that he was without hope of escape and had no right to continue the fight. I think it made a strong impression on him and hope for his surrender. If he refuses, I will open on him at 12 noon, to-morrow, with every gun I have and have the assistance of the Navy. Are ready to bombard the city with 13-inch shells. There is a good deal of nervousness throughout the Army on account of yellow fever, which is among us, certainly. Twenty-nine new cases yesterday, and probably 150 all told. Whatever happens, one or two immune regiments should be sent here to act as hospital guards and garrison for the town.

W. R. SHAFTER.

WAR DEPARTMENT, July 13, 1898—4.30 p. m.

Major-General SHAFTER, *Playa del Este, Cuba:*

Your message announcing that unless your terms are accepted before noon to-morrow you will make an assault all along the line is received and approved. God bless you and your heroic army.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI,

(Received Washington July 13, 1898—2.40 a. m.)

SECRETARY OF WAR, *Washington:*

Camp near Santiago, 12.—The Spanish general to-day asked some conclusion be reached that shall save his honor. Offers to surrender Santiago province, force, batteries, munitions of war, etc., all except the men and small arms. Under ordinary circumstances would not advise acceptance, but this is a great concession and would avoid assaulting intrenched lines with every device for protecting his men and inflicting heavy loss on assaulting lines. The siege may last many weeks. They have the provisions for two months. There are 20,000 starving people who have fled the city and were not allowed to take any food. The fortitude and heroism of the army has been unsurpassed, and, under the circumstances, I concur with General Shafter and the major-generals, and would request that discretion be granted as to terms, in view of the importance of other immediate operations in which both this part of the army and navy will participate. The very serious part of this situation is that there are 100 cases of yellow fever in this command, and the opinion of the surgeon that it will spread rapidly.

MILES, *Major-General, Commanding.*

WASHINGTON, D. C., July 13, 1898.

Major-General MILES,

Camp near Santiago, Playa del Este, Cuba:

You may accept surrender by granting parole to officers and men, the officers retaining their side arms. The officers and men after parole to be permitted to return to Spain, the United States assisting. If not accepted, then assault, unless in your judgment an assault would fail. Consult with Sampson, and pursue such course as to the assault as you jointly agree upon. Matter should now be settled promptly.

R. A. ALGER, *Secretary of War.*

(See dispatch to General Shafter, July 10.)

WAR DEPARTMENT,

Washington, July 13, 1898.

The honorable the SECRETARY OF THE NAVY:

SIR: I have the honor to request that you order the fleet off Santiago to at once force its way into the bay, if possible, to aid the army in the capture of Santiago and the Spanish army defending it.

The special reasons for immediate action are: First, the very heavy rains that are falling almost continually have made the roads nearly impassable, and threaten to cut off our supply of provisions for the army in the trenches altogether; second, the rains are making the holding of our lines almost impossible, as the trenches are filled with water; third, the lives of our men are in great danger from yellow fever, which has broken out among our troops and is spreading rapidly; and fourth, the character of the works of the enemy is such that to take them by assault would be a terrible sacrifice of life.

These conditions, it is believed by the major-general commanding, would be changed were the navy in the bay to cooperate with the army, and the capture of the city and the Spanish army thus made comparatively easy matter.

Very respectfully,

R. A. ALGER, *Secretary of War.*

NAVY DEPARTMENT, *Washington, July 14, 1898.*

The honorable the SECRETARY OF WAR:

SIR: I have the honor to acknowledge the receipt of your communication of the 13th instant, requesting orders be issued by this Department for the fleet off Santiago to force its way into the bay, if possible, to aid the Army in the capture of Santiago and the Spanish army defending it.

Very respectfully,

JOHN D. LONG, *Secretary.*

PLAYA. (Received Washington July 14, 1898—11.05 a. m.)

ADJUTANT GENERAL U. S. ARMY, *Washington:*

Camp near Santiago, 14.—Fifth Army Corps have this moment received communication from General Toral asking the commissioners be appointed to arrange terms of surrender on basis of returning to Spain. Has appointed his commissioners. Have not surrendered, however. How soon can the Spanish army be sent back?

W. R. SHAFTER,
Major-General.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 14, 1898—12 noon.

General SHAFTER, *Playa del Este, Cuba:*

Your message referring to General Toral's last communication is received. The assistance of the United States to return the Spanish prisoners to Spain is a matter of detail which will require time, but will be done promptly and with the least possible delay. That can be arranged after surrender, which should be immediate, on lines of instruction already given you.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

PLAYA. (Received Washington July 14, 1898—2.04 p. m.)

ADJUTANT-GENERAL, *Washington:*

Have just returned from interview with General Toral. He agrees to surrender upon the basis of being returned to Spain. This proposition embraces all of eastern Cuba from Acerraderos on the south to Sagua on the north, via Palma, with practically the Fourth Army Corps. Commissioners meet this afternoon at 2.30 to definitely arrange the terms.

W. R. SHAFTER, *Major-General.*

EXECUTIVE MANSION,
Washington, July 14, 1898—2.49 p. m.

Major-General SHAFTER, *Camp before Santiago, Cuba:*

Telegram saying General Toral agrees to surrender received. Conclusion awaited with much interest.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

PLAYA, *July 15, 1898.* (Received Washington 1.40 p. m.)

SECRETARY OF WAR, *Washington:*

At a meeting between the lines, at which Generals Shafter and Wheeler and Spanish General Toral were present, the latter claimed that he is unable to act without authority of his Government, but has received authority to withdraw and surrender

harbor ports, munitions of war, and eastern portion of Cuba. He urgently requests until to-morrow noon to receive answer from his Government regarding offer of our Government to send his forces to Spain, which was granted.

MILES, *Major-General Commanding.*

WASHINGTON, D. C., July 13, 1898.

Major-General MILES, *Camp near Santiago, Playa del Este, Cuba:*

I telegraphed you an hour since in regard to the action of the Army. Since then your dispatch has been received conveying the result of the meeting between the lines, at which conference Toral requested until to-morrow noon to hear from his Government regarding our offer, which you granted. Your action is approved. This Government will send the Spanish prisoners who surrender home, if they wish.

R. A. ALGER, *Secretary of War.*

PLAYA. (Received Washington July 14, 1898—3.24 p. m.)

SECRETARY OF WAR, *Washington:*

Before Santiago, July 14.—General Toral formally surrendered the troops of his army corps and division of Santiago on the terms and understanding that his troops would be returned to Spain. General Shafter will appoint commissioners to draw up the conditions of arrangements for carrying out the terms of surrender. This is very gratifying, as General Shafter and the officers and men of this command are entitled to great credit for their sincerity, fortitude, and in overcoming almost insuperable obstacles which they encountered. A portion of the Army has been infected with yellow fever, and efforts will be made to separate those who are infected and those free from it, and to keep those which are still on board ship separated from those on shore. Arrangements will be immediately made for carrying out further instructions of the President and yourself.

NELSON A. MILES,
Major-General of the Army.

EXECUTIVE MANSION,
Washington, July 15, 1898—12.35 p. m.

Major-General SHAFTER, *Camp before Santiago, Cuba:*

Have you received the absolute surrender of the enemy? We are awaiting the conditions with impatience.

R. A. ALGER, *Secretary of War.*

PLAYA. (Received Washington July 15, 1898—12.52 p. m.)

SECRETARY OF WAR, *Washington:*

Daiquiri, 15.—Commission on behalf of United States appointed, consisting of Generals Wheeler, Lawton, and Lieutenant Miley, with Spanish commission, to arrange for the details for carrying into effect the capitulation. I will reach Siboney to-morrow, and will attend more especially to the second expedition.

MILES, *Major-General.*

PLAYA. (Received Washington July 15, 1898—4.10 p. m.)

ADJUTANT-GENERAL, *Washington:*

Headquarters near Santiago, 15.—Sent you several telegrams yesterday, as did General Miles, in regard to surrender. General Toral agreed yesterday positively to surrender all the forces under his command in Eastern Cuba upon a distinct understanding that they were to be sent to Spain by the United States; that this surrender was authorized by General Blanco, and that its submission to-morrow was merely formal. Commissioners to arrange details were appointed—Wheeler, Lawton, and Miley on part of United States. Points were immediately raised by Spanish commissioners.

The discussion lasted until 10 last night. At last my commissioners think the matter will be settled to-day and met at 9.30 o'clock this a. m. The great point with Spanish is that they may be allowed to carry their arms with them to Spain, marching out here and depositing them in my charge, but having them shipped

with them to Spain. There are about 12,000 troops in the city and about as many more in the surrounding district; 25,000 in all will be transported. General Miles was present and said the surrender was as absolute and as complete as possible. It can not be possible that there will be failure in completing arrangements. Water famine in city imminent. Have supply cut. This was to Lieutenant Miley by English commissioners. Will wire frequently when negotiations are progressing.

SHAFTER, *Major-General, Commanding.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 15, 1898—4.45 p. m.

Major-General SHAFTER, *Playa del Este:*

Secretary of War suggests, is it not possible that Toral is gaining time to get reinforcements that may be on the way to assist him?

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI.
(Received at Washington July 15, 1898—9 p. m.)

ADJUTANT-GENERAL UNITED STATES ARMY, *Washington:*

Headquarters near Santiago, Cuba, 15.—I do not believe that Toral is trying to gain time in hopes of getting reinforcements. Cubans have forces in vicinity of all Spanish troops. Toral asked to-day to send messages to Guantanamo and to Palmas to notify Spanish troops of condition. Wheeler, Lawton, and Miley are thoroughly convinced that they are earnest, and they have been in consultation with the Spaniards twenty-four hours. Am told by reliable persons Santiago the Spanish officers are greatly pleased at the thought of going home, but generals are afraid of the consequences with themselves unless terms of surrender are sanctioned by the Madrid Government.

SHAFTER, *Major-General.*

EXECUTIVE MANSION,
Washington, July 15, 1898—5.59 p. m.

Major-General SHAFTER,
Camp near Santiago, Playa:

It is not possible that you are entertaining the proposition of permitting the Spanish to carry away their arms. Such a suggestion should be rejected instantly. You have been instructed the terms of surrender acceptable to the President, and they must be concluded on these lines.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI,
(Received Washington July 15, 1898—11.20 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Headquarters near Santiago, 15.—I do not entertain the proposition for the Spanish to retain their arms. They are to surrender them absolutely immediately after articles of capitulation are signed, but they beg, as an act of consideration to them, that I will intercede with my Government that they be shipped with them to Spain. I regard this as a small matter that in no way binds the Government, but is one I would not let stand between clearing 20,000 Spanish soldiers out of Cuba or leaving them there to be captured later and probably with much loss to ourselves.

SHAFTER, *Major-General.*

EXECUTIVE MANSION,
Washington, July 16, 1898—1.18 a. m.

Major-General SHAFTER, *Playa del Este, Cuba, Camp near Santiago:*

Our understanding from your messages is that you have agreed with the commander of the Spanish forces in Eastern Cuba for their complete surrender, and with a single condition granted on your part that the United States would transport them to Spain, officers and soldiers to give their paroles, and the former to retain their side arms. The demand of General Toral that the arms belonging to his command shall be shipped with him to Spain has been rightly declined by you.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, via HAITI,
(Received Washington July 16, 1898—2.20 a. m.)

ADJUTANT-GENERAL, *Washington*:

Headquarters near Santiago, 15.—Surrender was made by Toral, yesterday p. m., absolutely on condition of returning troops to Spain. Delay was caused by the commissioners on his part insisting on approval of Madrid. I think they fear death when they get home. We may have to fight them yet.

SHAFTER.

PLAYA. (Received Washington July 16, 1898—9.05 a. m.)

ADJUTANT-GENERAL, *Washington*:

Spanish surrendered; particulars later.

SHAFTER.

Terms of the military convention for the capitulation of the Spanish forces occupying the territory which constitutes the division of Santiago de Cuba, and described as follows: All that portion of the island of Cuba east of a line passing through Aserradero, Dos Palmas, Canto Abajo, Escondida, Tanamo, and Aguilera, said troops being in command of Gen. José Toral, agreed upon by the undersigned commissioners: Brig. Gen. Don Federico Escario, Lieut. Col. of Staff Don Ventura Fontan, and, as interpreter, Mr. Robert Mason, of the city of Santiago de Cuba, appointed by General Toral, commanding the Spanish forces, on behalf of the Kingdom of Spain, and Maj. Gen. Joseph Wheeler, U. S. Volunteers, Maj. Gen. H. W. Lawton, U. S. Volunteers, and First Lieut. J. D. Miley, Second Artillery, aid-de-camp, appointed by General Shafter, commanding the American forces, on behalf of the United States.

1. That all hostilities between American and Spanish forces in this district absolutely and unequivocally cease.
2. That this capitulation includes all the forces and war material in said territory.
3. That the United States agrees, with as little delay as possible, to transport all the Spanish troops in said district to the Kingdom of Spain, the troops being embarked as far as possible at the port nearest the garrisons they now occupy.
4. That the officers of the Spanish army be permitted to retain their side arms, and both officers and private soldiers their personal property.
5. That the Spanish authorities agree to remove, or assist the American Navy in removing, all mines or other obstructions to navigation now in the harbor of Santiago and its mouth.
6. That the commander of the Spanish forces deliver without delay a complete inventory of all arms and munitions of war of the Spanish forces in above-described district to the commander of the American forces; also a roster of said forces now in said district.
7. That the commander of the Spanish forces in leaving said district is authorized to carry with him all military archives and records pertaining to the Spanish army now in said district.
8. That all that portion of the Spanish forces known as volunteers, movilizados, and guerrillas who wish to remain in the island of Cuba are permitted to do so upon condition of delivering up their arms and taking a parole not to bear arms against the United States during the continuance of the present war between Spain and the United States.
9. That the Spanish forces will march out of Santiago de Cuba with honors of war, depositing their arms thereafter at a point mutually agreed upon to await their disposition by the United States Government, it being understood that the United States commissioners will recommend that the Spanish soldier return to Spain with the arms he so bravely defended.
10. That the provisions of the foregoing instrument become operative immediately upon its being signed.

Entered into this 16th day of July, 1898, by the undersigned commissioners acting under instructions from their respective commanding generals, and with the approbation of their respective Governments.

JOSEPH WHEELER,
Major-General, U. S. Volunteers.
H. W. LAWTON,
Major-General, U. S. Volunteers.
J. D. MILEY,
First Lieutenant, Second Artillery,
Aid-de-camp to General Shafter.
FEDERICO ESCARIO.
VENTURA FONTAN.
ROBT. MASON.

WASHINGTON, D. C., July 16, 1898.

General SHAFTER, *Commanding,
Front near Santiago, Playa:*

The President of the United States sends to you and your brave army the profound thanks of the American people for the brilliant achievements at Santiago, resulting in the surrender of the city and all of the Spanish troops and territory under General Toral. Your splendid command has endured not only the hardships and sacrifices incident to campaign and battle, but in stress of heat and weather has triumphed over obstacles which would have overcome men less brave and determined. One and all have displayed the most conspicuous gallantry and earned the gratitude of the nation. The hearts of the people turn with tender sympathy to the sick and wounded. May the Father of Mercies protect and comfort them.

WILLIAM MCKINLEY.

WASHINGTON, D. C., July 16, 1898.

MAJOR-GENERAL SHAFTER, *Front near Santiago, Playa:*

I can not express in words my gratitude to you and your heroic men. Your work has been well done. God bless you all.

R. A. ALGER, *Secretary of War.*

WAR DEPARTMENT, July 16, 1898.

General SHAFTER, *Playa del Este, Cuba:*

The Secretary of War directs that the President's message to you be published to each regiment in your army.

H. C. CORBIN, *Adjutant-General.*ADJUTANT-GENERAL'S OFFICE,
Washington, July 16, 1898—10.15 a. m.General SHAFTER, *Playa del Este:*

Let me, too, add my hearty congratulations to you and all with you.

H. C. CORBIN, *Adjutant-General.*PLAYA DEL ESTE, via HAITI.
(Received Washington July 16, 1898—10.05 p. m.)Hon. R. A. ALGER, *Secretary of War, Washington:*

Camp near Santiago, 16.—Thank you very much for your kind telegram of this date. The army is glad to know its action meets with your approval.

SHAFTER, *Major-General.*PLAYA DEL ESTE, VIA HAITI,
(Received Washington July 16, 1898—8.52 p. m.)ADJUTANT-GENERAL U. S. ARMY, *Washington:*

Camp near Santiago, 16.—The surrender has been definitely settled, and the arms will be turned over to-morrow morning and the troops will be marched out as prisoners of war. The Spanish colors will be hauled down at 9 o'clock and the American flag hoisted. Hope transports will be sent here to get them away as quickly as possible.

SHAFTER, *Major-General.*ADJUTANT-GENERAL'S OFFICE,
Washington, July 17, 1898—9.55 a. m.General SHAFTER, *Playa del Este, Cuba:*

Your telegram saying that our flag would be hoisted in Santiago at 9 this morning was received by the President and Secretary of War and members of the Cabinet with a sense of profound satisfaction. This feeling is general with all the people. I hope you are well.

H. C. CORBIN, *Adjutant-General.*

SANTIAGO DE CUBA, *July 17, 1898.*

(Received Washington 4.36 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington, D. C.:*

I have the honor to announce that the American flag has been this instant, 12 noon, hoisted over the house of the civil government in the city of Santiago. An immense concourse of people present. A squadron of cavalry and a regiment of infantry presenting arms and band playing national air. Light battery fired salute of 21 guns. Perfect order is being maintained by municipal government. Distress is very great, but little sickness in town. Scarcely any yellow fever. A small gun-boat and about 200 seamen left by Cervera have surrendered to me. Obstructions are being removed from mouth of harbor. Upon coming into the city I discovered a perfect entanglement of defenses. Fighting as the Spaniards did the first day, it would have cost 5,000 lives to have taken it. Battalions of Spanish troops have been depositing arms since daylight in armory over which I have guard. I hope vessels sufficient to carry 8,000 to 10,000 men will be sent as soon as possible, as the presence of prisoners is source of embarrassment. No sickness among them, and they should leave before any breaks out. General Toral formally surrendered the plaza and all stores at 9 a. m. American consul needed here.

W. R. SHAFTER, *Major-General.*

ADJUTANT-GENERAL'S OFFICE,

*Washington, July 18, 1898—6.30 p. m.*General SHAFTER, *Santiago, Cuba:*

The following is sent you for your information and guidance. It will be published in such manner in both English and Spanish as will give it the widest circulation in the territory under your control:

"To the SECRETARY OF WAR:

"SIR: The capitulation of the Spanish forces in Santiago de Cuba and in the eastern part of the province of Santiago, and the occupation of the territory by the forces of the United States, render it necessary to instruct the military commander of the United States as to the conduct which he is to observe during the military occupation.

"The first effect of the military occupation of the enemy's territory is the severance of the former political relations of the inhabitants and the establishment of a new political power. Under this changed condition of things, the inhabitants, so long as they perform their duties, are entitled to security in their persons and property, and in all their private rights and relations. It is my desire that the inhabitants of Cuba should be acquainted with the purpose of the United States to discharge to the fullest extent its obligations in this regard. It will therefore be the duty of the commander of the army of occupation to announce and proclaim in the most public manner that we come, not to make war upon the inhabitants of Cuba, nor upon any party or faction among them, but to protect them in their homes, in their employments, and in their personal and religious rights. All persons who, either by active aid or by honest submission, cooperate with the United States in its efforts to give effect to this beneficent purpose will receive the reward of its support and protection. Our occupation should be as free from severity as possible.

"Though the powers of the military occupant are absolute and supreme, and immediately operate upon the political condition of the inhabitants, the municipal laws of the conquered territory, such as effect private rights of person and property, and provide for the punishment of crime, are considered as continuing in force, so far as they are compatible with the new order of things, until they are suspended or superseded by the occupying belligerent; and in practice they are not usually abrogated, but are allowed to remain in force, and to be administered by the ordinary tribunals, substantially as they were before the occupation. This enlightened practice is, so far as possible, to be adhered to on the present occasion. The judges and the other officials connected with the administration of justice may, if they accept the supremacy of the United States, continue to administer the ordinary law of the land, as between man and man, under the supervision of the American commander in chief. The native constabulary will, so far as may be practicable, be preserved. The freedom of the people to pursue their accustomed occupations will be abridged only when it may be necessary to do so.

"While the rule of conduct of the American commander in chief will be such as has just been defined, it will be his duty to adopt measures of a different kind, if, unfortunately, the course of the people should render such measures indispensable to the maintenance of law and order. He will then possess the power to replace or expel the native officials in part or altogether, to substitute new courts of his own constitution for those that now exist, or to create such new or supplementary tribu-

nals as may be necessary. In the exercise of these high powers the commander must be guided by his judgment and his experience and a high sense of justice.

"One of the most important and most practical problems with which it will be necessary to deal is that of the treatment of property and the collection and administration of the revenues. It is conceded that all public funds and securities belonging to the government of the country in its own right, and all arms and supplies and other movable property of such government, may be seized by the military occupant and concerted to his own use. The real property of the State he may hold and administer, at the same time enjoying the revenues thereof, but he is not to destroy it save in the case of military necessity. All public means of transportation, such as telegraph lines, cables, railways, and boats belonging to the State may be appropriated to his use, but unless in case of military necessity they are not to be destroyed. All churches and buildings devoted to religious worship and to the arts and sciences, all school houses, are, as far as possible, to be protected, and all destruction or intentional defacement of such places, of historical monuments, or of archives, or of works of science or art, is prohibited, save when required by urgent military necessity.

Private property, whether belonging to individuals or corporations, is to be respected, and can be confiscated only for cause. Means of transportation, such as telegraph lines and cables, railways and boats, may, although they belong to private individuals or corporations, be seized by the military occupant, but, unless destroyed under military necessity, are not to be retained.

While it is held to be the right of the conqueror to levy contributions upon the enemy in their seaports, towns, or provinces which may be in his military possession by conquest, and to apply the proceeds to defray the expense of the war, this right is to be exercised within such limitations that it may not savor of confiscation. As the result of military occupation the taxes and duties payable by the inhabitants to the former government become payable to the military occupant, unless he sees fit to substitute for them other rates or modes of contribution to the expenses of the government. The moneys so collected are to be used for the purpose of paying the expenses of government under the military occupation, such as the salaries of the judges and the police, and for the payment of the expenses of the army.

Private property taken for the use of the army is to be paid for, when possible, in cash at a fair valuation; and when payment in cash is not possible receipts are to be given.

All ports and places in Cuba which may be in the actual possession of our land and naval forces will be opened to the commerce of all neutral nations, as well as our own, in articles not contraband of war, upon payment of the prescribed rates of duty which may be in force at the time of importation.

By order Secretary of War:

WILLIAM MCKINLEY.

H. C. CORBIN, *Adjutant-General*.

SANTIAGO, VIA HAITI, *July 25, 1898.*

(Received Washington 6.55 p. m.)

ADJUTANT-GENERAL OF THE ARMY, *Washington:*

Fifteen hundred copies of the President's proclamation were printed as directed, and distributed throughout the territory.

SHAFTER, *Major-General*.

PLAYA DEL ESTE, VIA HAITI, *July 21, 1898.*

(Received at Washington 6.03 p. m.)

SECRETARY OF WAR, *Washington:*

In order to avoid conflict of authority or misunderstanding, general directions were given General Shafter to be executed under his orders and supervision, as follows: All regimental property and stores needed with his command were to be unloaded without delay at Santiago. Such transports as were required for hospital ships would be selected. Those loaded with troops and supplies for Porto Rico were to go there, and all others, as fast as emptied, return to Tampa. Tugs, lighters, and appliances for disembarking troops and commissary and quartermaster's stores not required at Santiago were to be forwarded to Porto Rico. Quartermaster transportation wagon and pack trains not required at Santiago to be also forwarded to Porto Rico. On completion of such duties, Colonels Humphrey and Weston to be sent to Porto Rico. This left the whole matter under the direction and supervision of General Shafter, and it was also left to his option to determine when the services of the officers named could be spared. As the Spanish prisoners have their own commissaries and quartermasters, General Shafter can issue to them stores in bulk for from five to ten days at a time.

There is no liability of their going away, as without arms they would be in danger of the Cubans, and they can not go by sea, hence they will require but a small guard. There is not a single regiment of regulars or volunteers with General Shafter's command that is not infected with yellow fever, from one case in the Eighth Ohio to thirty-six cases in the Thirty-third Michigan. After consulting with best medical authorities it is my opinion that the best mode of ridding the troops of the fever will be as I have directed, namely, the troops to go up as high into the mountains as possible, selecting fresh camp every day. If this does not check the spread of the disease the only way of saving a large portion of the command will be to put them on transports and ship them to New England coast, to some point to be designated by the Surgeon-General. Colonel Greenleaf, surgeon in chief, believes the disease comes from occupying houses, shacks, and blockhouses that have been occupied by yellow fever patients, although I had given positive directions prohibiting this before the troops landed. This was the case with the building occupied as post-office, one occupied by correspondents, and those occupied by the Thirty-third Michigan. In one blockhouse at Aguadores, where the Spaniards usually kept a guard of nine men, there originated thirty-seven cases resulting in death during the past year.

MILES, *Major-General Commanding.*

HEADQUARTERS OF THE ARMY,
Washington, D. C., July 4, 1898.

The ADJUTANT-GENERAL, *Headquarters of the Army.*

SIR: I have the honor to recommend that the necessary authority be forwarded to Major-General Shafter to utilize, on the application of the Chief Surgeon, for the transportation of the sick and wounded of his army, any vessel adapted to that purpose that may be returning from Cuba to the United States; and should a transport be so used, that telegraphic information be sent at once to the Surgeon-General of the Army, stating date of departure, the number of patients on board, and the port of destination.

Very respectfully, your obedient servant,

CHAS. R. GREENLEAF,
*Colonel, Assistant Surgeon-General, U. S. Army,
Chief Surgeon Army in the Field.*

ADJUTANT-GENERAL'S OFFICE, *Washington, July 4, 1898.*

General SHAFTER, *Playa del Este, Cuba:*

You are authorized to use any vessel adapted to that purpose for transportation of sick and wounded. Telegraph this office, giving date of departure and number of patients on board, and destination of any vessel so used.

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE, *Washington, July 7, 1898.*

Major-General SHAFTER, *Playa del Este, Cuba:*

Secretary of War directs that consolidated returns of killed and wounded be mailed as soon as they can be prepared without interference with work in hand.

H. C. CORBIN, *Adjutant-General.*

PLAYA DEL ESTE, VIA HAITI,
(Received at Washington July 7, 1898.)

ADJUTANT-GENERAL U. S. ARMY, *Washington.:*

Headquarters Fifth Army Corps, near San Juan River, 6.—The list of killed and wounded in Second Division already forwarded. Others not yet received, but will be sent you as soon as possible.

E. J. MCCLERNAND,
Assistant Adjutant-General.

PLAYA DEL ESTE, VIA HAITI,
(Received at Washington July 9, 1898—9.35 a. m.)

ADJUTANT-GENERAL, *Washington.:*

Camp near Santiago, 8.—Complete report received to-day of losses on July 1 and 2: Killed, 22 officers and 208 enlisted men; wounded, 81 officers and 1,203 enlisted

men; missing, 79 enlisted men. The reports giving names of killed and wounded are being rapidly prepared, and it is hoped to get them off to-morrow.

SHAFTER, *Major-General*.

PLAYA, July 11, 1898. (Received at Washington 2.05 p. m.)

ADJUTANT-GENERAL U. S. ARMY, *Washington*:

Siboney, Cuba, 11.—Reports of casualties in actions of July 1, 2, and 3 show: Killed, 23 officers, 208 men; wounded, 80 officers, 1,203 men; missing, 81 men; grand total, 1,595; number of missing will be reduced. Number by mail, giving names.

SHAFTER, *Major-General, Commanding*.

SANTIAGO, VIA HAITI, July 24, 1898.

(Received at Washington 5.30 p. m.)

ADJUTANT-GENERAL OF THE ARMY, *Washington*:

The report of casualties, in figures, was sent you on July 10. A full report, giving name, rank, and regiment of killed, wounded, and missing, was forwarded by mail July 12, and the supplemental report containing names of about 15 men that had not been included was forwarded a few days later. I have the retained copies, but on account of uncertainty of mails I dislike to forward them.

SHAFTER, *Major-General, Commanding*.

ADJUTANT-GENERAL'S OFFICE,

Washington, July 24, 1898—11.15 p. m.

General SHAFTER, *Santiago*:

The casualty report in figures reached here to-day. That containing names will doubtless be along very soon. If not, will inform you.

H. C. CORBIN, *Adjutant-General*.

PLAYA DEL ESTE.

(Received at Washington, July 6, 1898—4.20 a. m.)

ADJUTANT-GENERAL, *Washington*:

In Camp near Santiago, Cuba, 5.—The *Iroquois* sailed two days ago with 300 wounded. *Cherokee* sails to-day with 325 wounded.

SHAFTER, *Commanding*.

ADJUTANT-GENERAL'S OFFICE,

Washington, July 5, 1898.

Major-General SHAFTER, *Playa del Este, Cuba*:

Secretary War directs that as far as possible the sick and wounded of your command be sent to Fort Monroe, and not to Key West or Tampa. Of course your chief medical officer will determine character of cases sent. Surgeon-General suggests that the most severe cases should be treated on *Relief* ship.

By command Major-General Miles:

H. C. CORBIN, *Adjutant-General*.

PLAYA DEL ESTE, VIA HAITI.

(Received Washington July 6, 1898—9.47 p. m.)

ADJUTANT-GENERAL, *Washington*:

In Camp near Santiago, 5.—*Iroquois* already sailed for Key West. If *Cherokee* has not sailed will have her go to Fort Monroe. Hereafter all wounded will be sent to Fort Monroe.

SHAFTER, *Commanding*.

ADJUTANT-GENERAL'S OFFICE,

Washington, July 6, 1898.

COMMANDING OFFICER, *Key West, Fla.*:

On arrival of the *Cherokee* from Santiago, which sailed yesterday, Secretary War directs you cause her to proceed to Tampa, where hospital train will await the wounded on this ship.

H. C. CORBIN, *Adjutant-General*.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 8, 1898.

COMMANDING OFFICER, *Key West, Fla.* :

The *Cherokee*, on its arrival at Key West, will discharge 100 of the worst wounded cases, to be taken into the hospital at Key West. After discharging these hundred she will then proceed to Tampa, where she will be met by hospital train, and the sick conveyed to Fort McPherson.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

(Same to commanding officer the *Cherokee*, on arrival at Key West; surgeon in charge of wounded, the *Cherokee*, Key West, Fla.)

Upon General Shafter's leaving Santiago Major-General Lawton was placed in charge of the province of Santiago and Brigadier-General Wood in command of the city of Santiago.

On October 7 General Lawton was granted a sick leave, and Brigadier-General Wood succeeded him.

Customs regulations have been put in force in this department, and much has been done to improve the sanitary condition of Santiago, and arrangements are being made to carry on the same work in other cities under his command.

On the 10th of October the Spaniards evacuated Manzanillo, which has also been placed in the department of General Wood. The sanitary condition of all cities of this province is simply terrible, and a great amount of work and the expenditure of much money will be necessary to make them habitable.

Cooler weather approaching, and under the energetic supervision of General Wood it is hoped that his department will, before the beginning of the hot season of 1899, be in good condition.

While funds are lacking to enable the inhabitants to go to their homes and begin raising crops, yet the employment given many of these people by the Government is in a measure aiding them. It will, however, be necessary to furnish them means to commence raising the necessary crops and for self-support.

Following dispatches relate to the Porto Rico campaign. Reference is also made to the report of the Major-General Commanding:

WAR DEPARTMENT, July 18, 1898.

General MILES, *Siboney, Cuba* :

What have you determined upon? We wish to know where to direct transports.

R. A. ALGER, *Secretary of War.*

PLAYA DEL ESTE, VIA HAITI, July 18, 1898.
(Received at Washington 10.16 p. m.)

SECRETARY OF WAR, *Washington* :

Playa, 18.—At a meeting between Admiral Sampson and myself Saturday, Cape de San Juan was considered the best place to land at Porto Rico. I believe it would avoid some complication and delay if we could go there at once. Men and animals have been many days on shipboard.

MILES.

PLAYA, VIA HAITI, July 17, 1898.
(Received at Washington 6.42 p. m.)

SECRETARY OF WAR, *Washington* :

Guantanamo Bay, July 17.—There is a strong fleet of naval vessels in this harbor preparing to go to Spain. Would it not be well to suggest a strong combined move-

ment on Porto Rico, to make sure of the capture of the island and the reduction of the forts there as speedily as possible, as its occupation will probably be all the assistance required of the Navy in the complete control of the islands in the West Indies?

MILES, *Major-General Commanding.*

PLAYA DEL ESTE, VIA HAITI, July 20, 1898.

(Received Washington 8.25 p. m.)

SECRETARY OF WAR, *Washington:*

July 20.—There is an excellent battalion of about 500 marines here. If President would authorize, would like to take them with my command to Porto Rico, as they are anxious to go and the Navy has no further use for them.

MILES, *Major-General Commanding.*

WAR DEPARTMENT, July 20, 1898.

General MILES, *Playa del Este, Cuba:*

I do not think well of your suggestion about marines. We have enough army for our work. Do not take Colonel Humphrey away from Santiago.

R. A. ALGER, *Secretary of War.*

ADJUTANT-GENERAL'S OFFICE,
Washington, July 18, 1898—10.45 p. m.

Major-General MILES, *On board Yale, Guantanamo:*

After a conference of the President, Secretaries of War and Navy this morning telegram was sent directing you to land troops now on *Yale* and other transports at such place in Porto Rico as you may determine upon. Like telegram was sent Admiral Sampson. It is desired to know if the same has been received by you.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

PLAYA VIA HAITI, July 21, 1898.

(Received Washington 9.44 a. m.)

SECRETARY WAR, *Washington:*

Last night I sent this letter:

"JULY 20.

"Admiral SAMPSON, *Commanding North Atlantic Squadron.*

"SIR: I am informed by my adjutant-general that you have designated the *Yale* and *Columbia* as ships to render the assistance for landing of the troops and for maintaining their landing, and also the *Cincinnati*, the whereabouts of which I understand is not known, and the *New Orleans*, if it is at San Juan. If the latter vessel is not at San Juan it ought to be, and remain there; otherwise that port is left open with nothing to prevent the Spanish gunboats known to be there from coming out and capturing our transports now en route to Cape San Juan. Second, since it is not known where the *Cincinnati* is, it may or may not be of any assistance. Third, the *Columbia* and *Yale* could not silence a battery of light artillery on shore without jeopardizing the lives of 300 to 1,500 troops on board. In view of the above facts I have to inform you that I do not consider the force above mentioned available or sufficient to cover the landing of some 10,000 men now en route to Cape San Juan, and I have to request that an additional and ample force be immediately ordered to those waters.

"Very respectfully,

"NELSON A. MILES,

"*Major-General Commanding U. S. Army.*"

Have received the following reply:

"U. S. FLAGSHIP NEW YORK (FIRST RATE),

"*Guantanamo Bay, July 20, 1898.*

"NELSON A. MILES, *Major-General Commanding U. S. Army.*

"SIR: Referring to your letter of this date, the *Cincinnati* is ordered by telegraph here. She is either at Key West or within easy reach from there on the Havana blockade. The *Annapolis*, *Wasp*, and *Leyden*, ordered to attack Port Nipe, have been ordered to Cape San Juan to assist in the expedition. The *Gloucester* will be added. Three monitors will join the expedition. The *Cincinnati*, *Yale*, *Columbia*, *Annapolis*,

Wasp, *Gloucester*, and *Leyden* are amply sufficient to cover the landing of 10,000 men at the point named without the monitors. The first four are capable of silencing anything short of heavy guns in position.

"Very respectfully,

"W. T. SAMPSON,
"Rear-Admiral, U. S. Navy,
"Commander in Chief U. S. Naval Forces, North Atlantic Station."

With this support I will sail as quickly as the *Columbia* can get sufficient coal to take her to Cape San Juan and last a few days. All are very glad of the prospect of reaching their destination.

MILES.

WAR DEPARTMENT, July 21, 1898.

General MILES, *Playa del Este, Cuba*:

The Secretary of the Navy just informs me that he received an order from the President at 2 o'clock this morning to send the *Indiana* and *Newark*, or ships of that class, at once to convoy you and remain with you as long as needed. Don't go without them.

R. A. ALGER, *Secretary of War*.

ST. THOMAS, VIA BERMUDA, July 26, 1898.

(Received at Washington 9.35 p. m.)

SECRETARY WAR, *Washington*:

Circumstances were such that I deemed it advisable to take the harbor of Guanica first, 15 miles west of Ponce, which was successfully accomplished between daylight and 11 o'clock. Spaniards surprised. The *Gloucester*, Commander Wainwright, first entered the harbor; met with slight resistance; fired a few shots. All the transports are now in the harbor, and infantry and artillery rapidly going ashore. This is a well-protected harbor; water sufficiently deep for all transports, and heavy vessels can anchor within a few hundred yards of shore. The Spanish flag was lowered and the American flag raised at 11 o'clock to-day. Captain Higginson, with his fleet, has rendered able and earnest assistance. Hope to move on Ponce in a few days, that being the largest city in Porto Rico. Notification has been sent to the transports going to Cape San Juan that all transports and supplies should be directed to this port or Ponce until further notice. Troops in good health and best spirits. No casualties.

MILES,

Major-General Commanding Army.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 21, 1898—12.30 a. m.

Major-General MILES,

On Board Yale, Playa del Este, Cuba:

Wilson is on the way to Cape Fajardo. A battle ship and armed cruiser must be sent at once to protect them on the arrival. The President has so instructed the Secretary of the Navy.

R. A. ALGER,
Secretary of War.

PORT PONCE, PORTO RICO (VIA ST. THOMAS), July 28, 1898.

(Received Washington, July 29, 1898—2.11 p. m.)

SECRETARY OF WAR, *Washington*:

1.30 a. m. On the 26th Garretson had a spirited engagement on skirmish line. Our casualties, 4 wounded; all doing well. Spanish lost 3 killed, 13 wounded. Yauco occupied yesterday. Henry's division there to-day. Last evening Commander Davis of the *Dixie* moved into this port, followed by Captain Higginson with his fleet early this morning. General Wilson and Ernst's brigade now rapidly disembarking. Spanish troops are retreating from southern part Porto Rico. Ponce and port have population 50,000 now under American flag. The populace received troops and saluted the flag with wild enthusiasm. Navy has several prizes; also seventy lighters. Railway stock partly destroyed; now restored. Telegraph communication also being restored; cable instruments destroyed. Have sent to Jamaica

for others. This is a prosperous and beautiful country. The army will soon be in mountain region; weather delightful; troops in best of health and spirits; anticipate no insurmountable obstacles in future results. Thus far, have been accomplished without the loss of a single life.

NELSON A. MILES,
Major-General Commanding Army.

PORT PONCE, PORTO RICO (VIA ST. THOMAS), July 28, 1898.

(Received Washington July 29, 1898—2.36 p. m.)

SECRETARY WAR, Washington, D. C.:

4.15 p. m. In the affair of the 26th Capt. Edward J. Gibson, Company A, was wounded in the left hip; Capt. J. H. Prior, Company L, slightly wounded in hand; Private James Drummond, Company K, two wounds in neck, and Private Benjamin F. Bostick, Company L, slight wound on right arm; all of Sixth Massachusetts; all doing well. The Spanish retreat from this place was precipitous, they leaving rifles and ammunition in barracks and 40 or 50 sick in hospital. The people are enjoying a holiday in honor of our arrival.

MILES.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 26, 1898—4.25 p. m.

Major-General MILES, Porto Rico:

Conflicting reports here as to your place of landing. Why did you change? Doraco, near Ensenada, about 15 miles west of San Juan, is reported an excellent place to land. The *Yosemite* went in there and remained several days. Did you leave ships to direct Schwan and Wilson now en route where to find you? General Brooke will leave Fortress Monroe to-morrow.

R. A. ALGER, Secretary of War.

PORT OF PONCE, PORTO RICO, July 30, 1898.

The Honorable SECRETARY OF WAR, Washington, D. C.

SIR: This command was made up of detachments of troops sent from Santiago, Tampa, Charleston, and Newport News, and it was not intended at first to make more than a rendezvous for the purpose of organizing the command at Guantanamo or one of the islands near Cape San Juan. On the representation of one of the naval officers, however, Point Fajardo was selected. It was later found that this port was more of an open roadstead than a safe harbor, and, further, that it was well known that we were to land there, the Spaniards being thus enabled to concentrate their forces in that vicinity before our arrival. In addition to this, I found later that the road was not suitable there for wagons or artillery. Before leaving Guantanamo, however, I had expected lighters, steam tugs, etc., to be sent from Santiago and also a construction corps from New York. None of these arrived, nor did we meet them, as expected, in the Windward Passage. This left the command without lighters and, no wagon transportation. The above are some of the reasons why I decided to take the harbors of Guanica and Ponce, where we were least expected, and from which latter point there is a macadamized road which cost the Spanish Government millions of dollars, and over which it is only 70 miles to San Juan.

We have now landed in a perfectly healthy country, well settled, and where, if necessary, a large amount of beef can be obtained, and also transportation, and under the circumstances, in my mind, much more suitable and more important in a strategic way than the other point; besides, ample time will be furnished here for thoroughly organizing the expedition before the march and for creating a favorable impression upon the people. Every precaution has been taken to notify transports coming to proceed to this point, a large number of which have arrived.

Marching across the country, rather than under the guns of the fleet, will have in every way a desirable effect upon the inhabitants of this country. At least four-fifths of the people hail with great joy the arrival of United States troops, and requests for our national flag to place over public buildings come in from every direction.

I have the honor to be, very respectfully, your obedient servant,

NELSON A. MILES,
Major-General Commanding.

ADJUTANT-GENERAL'S OFFICE,
Washington, D. C., July 30, 1898—12.40 a. m.

General MILES, Ponce, Porto Rico:

Secretary of War directs me to inform you that the following transports left Newport News for Porto Rico July 28:

St. Louis with Third Illinois, 1,173 men, 46 officers, and General Brooke and staff. *Roumania* with four batteries, Rodney's battalion, about 19 officers and 700 men, 16 guns and caissons, 4 battery wagons, 331 horses, 72 mules, reserve ambulance, signal corps, and hospital wagons and stores, artillery ammunition, rations for men; about thirty days' forage for 1,000 horses.

Massachusetts with reserve ambulance corps, hospital corps, men and horses; headquarters First Army Corps; Troop H, Sixth Cavalry; Troops A and C, New York Volunteer Cavalry; City Troop, Pennsylvania Cavalry; Company F, Eighth Infantry. Total, 43 officers, 1,130 men, 1,005 horses and mules.

Seneca, with part Fourth Pennsylvania, 611 men, small arms, ammunition, rations for men, and additional commissary stores, wagons, and equipage, signal corps, 29 ambulances, and various small stores.

City of Washington, with part Fourth Pennsylvania, 612 men, cargo of commissary stores, overflow of *Massachusetts*, small arms ammunition, and rations for men.

St. Paul, with Fourth Ohio, 44 officers, 1,211 men, battery dynamite guns, Brigadier-General Hains and staff, Porto Rican Commission, newspaper correspondents, and transients joining Army in Porto Rico

General Grant's brigade follows from Newport News and will sail Monday or Tuesday. General Shafter is sending the transports rapidly to Tampa. Troops from there should be under way in considerable numbers by middle of the week unless we are embarrassed by the quarantine regulations, which are giving us trouble all along the line.

H. C. CORBIN, *Adjutant-General*.

ADJUTANT-GENERAL'S OFFICE,
Washington, July 30, 1898.

General MILES, Ponce, Porto Rico:

The Secretary of War directs that transports bringing you troops, as soon as discharged, be put under way at once for New York. This will expedite matters, avoiding complications of quarantine at Southern ports, and thus enable the Department to get you reinforcements and supplies in the quickest time possible. The Santiago transports will bring you all that you ordered from Tampa. They are all under way there.

H. C. CORBIN, *Adjutant-General*.

PONCE, PORTO RICO, July 31, 1898.
(Received at Washington 3.35 p. m.)

SECRETARY OF WAR, Washington, D. C.:

Your telegrams 27th received and answered by letter. Volunteers are surrendering themselves with arms and ammunition. Four-fifths of the people are overjoyed at the arrival of the army; 2,000 from one place have volunteered to serve with it. They are bringing in transportation, beef cattle, and other needed supplies. The custom-house has already yielded \$14,000, which is the only public funds we have for paying necessary expenses. As soon as all the troops are disembarked they will be in readiness to move. Please send any national colors that can be spared, to be given to the different municipalities. I request that the question of the tariff rates to be charged in the ports of Porto Rico occupied by our forces be submitted to the President for his action, the previously existing tariff remaining meanwhile in force. As to the Government under military occupation, I have already given instructions based upon the instructions issued by the President in the case of the Philippine Islands and similar to those issued at Santiago de Cuba.

MILES.

One hundred flags were sent to General Miles in response to above request.

PONCE, VIA BERMUDA.
(Received Washington August 2, 1898, 9.27 p. m.)

SECRETARY OF WAR, Washington:

Please inform me how soon ample quartermaster and commissary funds will be available at this place. We are using native transportation and employing labor in

unloading transports and storing supplies. Abundance of beef, cattle, coffee, sugar, and supplies of that character can be obtained in the country. Request that no more fresh meat be sent, as it can not be used more than a day from the coast. I also recommend that the manufacture of Springfield rifles, .45-caliber ammunition, all white canvas tentage and black-leather equipments of every description be discontinued, as they are obsolete and should not be a part of the army equipment.

MILES, *Major-General.*

WAR DEPARTMENT, *August 3, 1898.*

General MILES, *Ponce, Porto Rico:*

As you ought to know, the last caliber .45 Springfield rifle was manufactured in ninety-three. Smokeless powder cartridges are now being manufactured and will be forwarded. I suggest that you get along with what the Government has on hand. The question of currency and duties will be taken up to-day. Your action requiring all duties to be paid in United States currency is approved and will be adhered to.

R. A. ALGER, *Secretary of War.*

EXECUTIVE MANSION,
Washington, August 5, 1898.

General MILES, *Ponce, Porto Rico:*

The Secretary of War directs me to inform you that \$50,000 in coin was sent your quartermaster by General Brooke; \$100,000 more by *City of Chester* sailing to-morrow.

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, August 6, 1898—Noon.

General MILES, *Ponce, Porto Rico:*

A part of General Grant's brigade sailed from Newport News yesterday; 1,300 more will sail to-morrow; the Fifth United States Cavalry and First Ohio are waiting for the two transports; you were authorized by wire yesterday to send them. The Secretary War desires an early report of how many more troops, if any, you require to prosecute the campaign in Porto Rico. He wishes to hurry forward every man you require, but no more than you need.

H. C. CORBIN, *Adjutant-General.*

PONCE, *August 8, 1898.*
(Received Washington, 1.22 p. m.)

SECRETARY OF WAR, *Washington:*

I think enough troops have been ordered to Porto Rico. No more light batteries required.

MILES.

PONCE, *August 6, 1898.*
(Received Washington 2.35 p. m.)

SECRETARY OF WAR, *Washington:*

General Brooke reports Hains's Brigade, Fourth Ohio and Third Illinois, captured Guayama yesterday. Slight skirmish with enemy in and about town. Enemy's strength estimated about 500. Not ascertained that any of the enemy were regulars. Resistance not strong. Private John O. Cordner wounded below knee; C. W. Riffe, both legs below thigh; S. W. Wolcott, in right foot. None serious. All Fourth Ohio. One Spaniard killed, two wounded, as far as known.

MILES.

PONCE, *August 8, 1898.*
(Received Washington 3.10 p. m.)

SECRETARY OF WAR, *Washington:*

General Schwan's command is marching around the west end of Porto Rico. General Henry, with Garretson's brigade, is moving across Via Adjuntas and Utuado to Arecibo, thence to San Juan. General Brooke has one brigade between Guayama and Cayes. General Wilson, with Ernst's brigade, is at Coamo. American flag is floating in nearly all the principal places in Porto Rico. A small fort has been built at the entrance of Guanica Bay, which I hold; respectfully recommend be named Fort Capron, in honor of Captain Capron. Would recommend that no more troops or laborers be sent to Porto Rico.

MILES,
Major-General Commanding Army.

WAR DEPARTMENT, August 9, 1898.

General MILES, Ponce, Porto Rico.:

It is deemed advisable to at once establish a large hospital at Ponce. Can you get the lumber, labor, and material necessary to put this order into execution immediately? Will send you nurses and doctors as many as desired. This is of the utmost importance. Answer, giving number of nurses and doctors you deem will be required.

R. A. ALGER, Secretary of War.

PONCE (VIA BERMUDA), August 10, 1898.

(Received Washington 8 p. m.)

SECRETARY OF WAR, Washington:

Replying to your telegram, any sized hospital can be established. Lumber, labor, and material abundant. Or the *Relief* ship may be detained, with other transports of the Government, and be converted into hospital ships, if advisable, and remain in safe harbor. Matter being carefully considered by Colonels Greenleaf and Senn and Major Torney, who will render best judgment to-morrow and give number of nurses and doctors required. The command is in good health thus far, with the exception of cases that bring the germs of disease from Chickamauga and other camps.

MILES.

PONCE (VIA BERMUDA), August 11, 1898.

(Received Washington 9.45 p. m.)

SECRETARY OF WAR, Washington:

Following is result of conference and recommendation by Surgeons Greenleaf, Torney, Daly, regarding case sick of army in Porto Rico: General Miles's hospital of lumber can be built, but one of tents preferable. We, however, urgently recommend speedy return of sick to United States on properly equipped transports or hospital ships. Fifty doctors and hundred and fifty trained male nurses required at once.

MILES.

PONCE, August 9, 1898.

(Received Washington 1.35 p. m.)

SECRETARY WAR, Washington:

I am informed the naval vessels at this place have been ordered round to San Juan. In order that there may be no conflict of authority, I request that no aggressive action be taken against that place; that no landings be made or communication held with the Spanish officials or forces on this island & the Navy.

MILES.

PONCE, August 9, 1898.

(Received Washington 5.05 p. m.)

SECRETARY OF WAR, Washington:

Following received from General Wilson: General Ernst's brigade captured Coamo 8.30 this morning. Sixteenth Pennsylvania, Colonel Hulings commanding, led by Lieutenant-Colonel Biddle, of my staff, having made a turning movement through the mountains, striking the Aiboneto road half mile beyond town, captured entire garrison, amounting 150 men, Spanish commander, Illeroa, and Captain Lopez killed. Our loss reported 6 wounded, only 1 severely. Men and officers behaved excellently. General Ernst, Colonel Hulings, and Colonel Biddle are especially to be commended. This is a very important capture and well executed. Names of wounded as soon as received here.

MILES.

PONCE, August 13, 1898.

(Received Washington 1.06 p. m.)

SECRETARY OF WAR, Washington:

General Wilson reports Major Lancaster with Potts's battery at 1.30 p. m., 12th instant, quickly silenced enemy's battery at Asemanta, near Aiboneto, and drove him from his position and rifle pits; no infantry fire on our part. Lieut. John P. Hains, Third Artillery, struck by stray Mauser bullet; not serious. A shell from

enemy's gun burst just over one of our pickets, killing Corporal Swansen, wounding Corporal Jenks, Company L, Third Wisconsin, neck and arm; Private Vought, same company, seriously in abdomen; Private Bunce, same company, in chest, not seriously.

MILES.

PONCE (VIA BERMUDA), *August 10, 1898.*
(Received Washington, 7.40 p. m.)

SECRETARY OF WAR, *Washington:*

Have established telegraphic communication with General Brooke, who reports that in a skirmish on the 8th instant with the enemy about 3 miles north of Guayama General Hains forced the enemy to retreat. The following men of the Fourth Ohio were wounded, none killed: Capt. Edward O. Thompson, Company K, in right wrist; Private Samuel F. Jones, right knee; Private Noble W. Hanlacker, Company C, in ankle; Private Henry S. Haines, Company C, in right foot; Private William Jeddington, Company A, in hip.

MILES.

PONCE (VIA BERMUDA), *August 11, 1898.*
(Received Washington, 3.25 p. m.)

SECRETARY WAR, *Washington:*

Following message received from Schwan, camp near Hormigueros, 10. Advance guard, including cavalry of this command, while reconnoitering northwest of Rosarie River, near Hormigueros, developed strong Spanish force, which lay concealed in hills north of Mayaguez road. In general engagement which followed Lieutenant Byron, Eighth Cavalry, my aid-de-camp, was wounded in foot, and Private Fernberger, Company D, Eleventh Infantry and 1 other private was killed and 14 enlisted men were wounded. It is reported that the most, if not the entire, Spanish garrison of Mayaguez and surrounding country, consisting of 1,000 regulars and 200 volunteers, took part in engagement. We drove the enemy from his position, and it is believed inflicted heavy loss. A wounded Spanish lieutenant was found in field and brought in our lines. Conduct of officers and men was beyond all praise. I propose to continue my march on Mayaguez at early hour to-morrow. Signed, Schwan.

MILES.

PONCE (VIA BERMUDA), *August 11, 1898.*
(Received Washington, 9.35 p. m.)

SECRETARY OF WAR, *Washington:*

Following from Schwan:

"Immediately after repulse yesterday Spanish troops, joined by what were left in Mayaguez, moved in direction Lares. Have sent scouts in that direction. My command entered Mayaguez at 9 o'clock this morning.—SCHWAN."

MILES.

PONCE (VIA BERMUDA), *August 15, 1898.*
(Received Washington 3.11 p. m.)

SECRETARY WAR, *Washington:*

Following dispatches received from General Schwan, sent before he received notification suspension hostilities:

"IN CAMP, 2 MILES NORTH LASMARIOS, VIA GAUO, *August 13.*

"Burke's column, while descending valley Rio Grande, fired into by retreating Spanish force from mountain slope, north side stream. Fire returned, thought with effect; none of our men hurt. Spanish forces numbering about 1,500, heading for Lares and Penino. Received surrender of commanding officer, Colonel Soto; sick in cottage near; attended by two Spanish surgeons. Have directed they be sent Mayaguez; held as prisoners or paroled as you determine. Shall close my command here and be governed in movements to-morrow by reports expect to receive during the night. Probably march Lares; road most difficult.

"CAMP NEAR LOS MARIAS, August 14.

"After sending dispatch last evening, company Eleventh Infantry brought forty prisoners, including battalion commander and lieutenant; also number Spanish soldiers, wounded yesterday. Cavalry scouring country toward Lares for fugitives. Deserters from Spanish column, which has been thoroughly disorganized and demoralized by pursuit. Prisoners report our fire yesterday very effective and well directed."

Please notice on map our troops occupy best part of Porto Rico. They were moving in such strong column in concert that nothing could check their progress. They would have occupied the entire island within four days if they had not been stopped by order to suspend hostilities. There were some unavoidable delays before the troops could be landed, but none after. Will the disembarking of troops that are now in transports be considered an act of hostility?

MILES.

ADJUTANT-GENERAL'S OFFICE,
Washington, August 12, 1898—4.23 p. m.

Major-General MILES, *Ponce, Porto Rico*:

The President directs all military operations against the enemy be suspended. Peace negotiations are nearing completion, a protocol having just been signed by representatives of the two countries. You will inform the commander of the Spanish forces in Porto Rico of these instructions. Further orders will follow. Acknowledge receipt.

By order Secretary of War:

H. C. CORBIN, *Adjutant-General.*

ADJUTANT-GENERAL'S OFFICE,
Washington, August 12, 1898—5 p. m.

General MILES,
*Ponce, Porto Rico.*General MERRITT,
*Manila.*General SHAFTER,
Santiago.

The Secretary of War directs that the following proclamation of the President's be sent you for your information and guidance:

*"BY THE PRESIDENT OF THE UNITED STATES OF AMERICA,**"A PROCLAMATION.*

"Whereas, by a protocol concluded and signed August 12, 1898, by William R. Day, Secretary of State of the United States, and His Excellency Jules Cambon, Ambassador Extraordinary and Plenipotentiary of the Republic of France, at Washington, respectively representing for this purpose the Government of the United States and the Government of Spain, the United States and Spain have formally agreed upon the terms on which negotiations for the establishment of peace between the two countries shall be undertaken; and

"Whereas it is in said protocol agreed that upon its conclusion and signature hostilities between the two countries shall be suspended, and that notice to that effect shall be given as soon as possible by each Government to the commanders of its military and naval forces:

"Now, therefore, I, William McKinley, President of the United States, do, in accordance with the stipulations of the protocol, declare and proclaim on the part of the United States a suspension of hostilities, and do hereby command that orders be immediately given through the proper channels to the commanders of the military and naval forces of the United States to abstain from all acts inconsistent with this proclamation.

"In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

"Done at the city of Washington this 12th day of August, in the year of our Lord one thousand eight hundred and ninety-eight, and of the independence of the United States the one hundred and twenty-third.

*"By the President:**"WILLIAM McKINLEY.*

"WILLIAM R. DAY,
"Secretary of State."

Acknowledge receipt.
By order Secretary War:

H. C. CORBIN, *Adjutant-General.*

PONCE, via BERMUDA, *August 21, 1898*—8.05 p. m.

SECRETARY WAR, *Washington*:

Everything accomplished that could be desired. Only details to be arranged by commission for evacuation of Spanish troops. Some Spanish troops now marching to San Juan preparatory to embarking for Spain. I have 106 guns, mortars, and howitzers, field and siege, I intended to use at San Juan if Spanish had not been captured outside, which our troops were doing. These available if needed elsewhere. Among number are 10 light, very powerful dynamite guns. If desirable, any of above, with ammunition and men, can be shipped, via New Orleans and San Francisco, to Manila. I expect very soon to return to Washington.

MILES.

BOARD OF ORDNANCE AND FORTIFICATION.

WAR DEPARTMENT,

BOARD OF ORDNANCE AND FORTIFICATION,

Washington, D. C., October 25, 1898.

SIR: In response to your request of the 20th instant, I have the honor to submit a summary of the annual report of the Board of Ordnance and Fortification for the current year:

The general operations of the Board have been largely influenced by the war with Spain, officially declared April 21, 1898. A majority of the members have been called to duty in the field, and it has been necessary to meet at longer and more irregular intervals than usual.

A large number of devices and instruments, together with many suggestions and plans for national defense, have been carefully considered, and whenever the promise of future military value was sufficient to warrant it, an allotment has been made for development and test.

Satisfactory progress has been made by the Bethlehem Iron Company toward the completion of the 100-gun contract. All the 8-inch guns, 29 of the 10-inch, and 4 of the 12-inch guns have already been completed, and the work on the remainder is reported to be well advanced.

Dr. Gatling reports the 8-inch cast-steel gun of his design ready for shipment to Sandy Hook for test.

The trustees of the Brown segmental-tube wire-wound gun report that work has been somewhat delayed on their 10-inch experimental gun by the difficulty in procuring suitable steel from the manufacturers on time. The gun is now in the lathe, however, and partly turned and wound.

The Board has under consideration two methods of throwing high explosives from field guns, one proposed by the Sims-Dudley Defense Company of New York, the other by the Dynamite Ordnance and Armaments Company of New Jersey. The tests have not yet been completed.

Experiments are being made with heavy rapid-fire guns. A rapid-fire field gun and carriage have been purchased abroad for test, but are not yet delivered in this country.

Several forms of disappearing carriages for heavy guns are under construction or test.

During the year the Board has recommended the adoption of emmentite, wet gun-cotton, and joveite as types of high explosives for charging shells.

In emergency depression position finders the Board found both the Rafferty and the Lewis instruments satisfactory. A horizontal base position finder has been developed by Professor Crehore and Lieutenant Squier that is found to give accurate and satisfactory results.

The equipment of the typical artillery station at Fort Wadsworth was completed, with the exception of a portion of the auxiliary defenses, early in the summer, but exhaustive tests have been interfered with by the war. The text and plates of the Drill Regulations for Coast Artillery have been completed, approved by the Secretary of War, and distributed to the service.

The question of the application of electric-power apparatus for manipulating the guns and carriages of the seacoast armament and in the service of the ammunition has been carefully considered, and a type installation is now in progress at Fort Wadsworth.

An estimate of the funds needed to continue the work of the board during the coming year has been prepared and submitted, with a recommendation that the present law be so modified as to enable the Board to more directly control its expenditures. The Board believes it to be for the best interests of the service that it should have the power to disburse its own funds, subject to the control of the Secretary of War.

While types of all the more important engines and appliances of war for our coast defenses have already been developed and adopted under the auspices of the board, much remains to be accomplished in order to make the armament truly effective. It is the aim of the board to keep in touch with the best inventive talent of the country in all that pertains to war material, to encourage the development of every suggestion and device of value presented, and to use the funds at its disposal to secure for our service the best products of American genius.

Very respectfully,

NELSON A. MILES,

Major-General Commanding the Army, President of the Board.

THE SECRETARY OF WAR.

THE SOLDIERS' HOME.

OFFICE OF THE BOARD OF COMMISSIONERS,

Washington, D. C., October 28, 1898.

SIR: I have the honor to submit the following summary of the annual report of the Board of Commissioners of the Soldiers' Home for the year ending September 30, 1898:

The report shows that on September 30, 1898, there were 1,226 receiving the benefits of the Home, an increase of 85 over last year, and that 771 were resident inmates; that the daily average number of inmates for the year was 751, and the number of deaths 54.

The permanent fund in the United States Treasury on September 30, 1898, was \$2,725,746.08, a decrease from amount of last year of \$11,857.87, due to delayed settlements of accounts by the Treasury Department. The disbursements for current expenses and permanent improvements amounted to \$206,566.28, \$11,720 greater than last year, which is accounted for by expenses incurred for permanent improvements, the purchase of cows for the dairy, and the installation of an electric plant.

Of the 771 resident inmates 629 are receiving pensions from \$6 to \$32 per month; two of these received \$50 and one \$72.

The daily average number of patients treated in the hospital was 74.91, and the average age of patients 53.92.

The cultivation of the farm and the reestablishment of the dairy proved profitable during the year.

Brig. Gen. David S. Stanley, U. S. A., was relieved as governor of the Home on April 15, 1898, by Brig. Gen. George D. Ruggles, U. S. A.

The affairs of the Home have been administered by its officers with zeal and wisdom. Good, wholesome food, comfortable clothing, clean quarters and beds, and rational amusement have been provided, leaving no reasonable room for complaint.

Very respectfully,

NELSON A. MILES,

Major-General Commanding the Army, President Board of Commissioners.

THE SECRETARY OF WAR.

Ab. 98—24

THE MILITARY ACADEMY.

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,

Washington, November 5, 1898.

SIR: I have the honor to submit herewith a synopsis of report of the Board of Visitors to the United States Military Academy for the year 1898:

APPOINTMENTS AND EXAMINATIONS.

The board was impressed with the accuracy of knowledge shown by the cadets in their examinations. The work done was strong testimony to the thoroughness of the instructors' work as well as to the diligence of the students.

The recommendations of previous boards, that the number of cadets be increased by allowing the President to appoint 20 and one to each Senator, is renewed.

DISCIPLINE AND INSTRUCTION.

The board is unable to suggest any improvement in the methods of discipline. All infractions of the rules are promptly punished with absolute justice and impartiality.

The methods of instruction are the result of many years of experience of accomplished and painstaking officers, and are as nearly perfect in their results as it seems possible to make them.

SEACOAST BATTERY.

It is recommended that the five 8-inch converted rifles be replaced with guns of modern type, one of which should be a disappearing gun.

This battery contains one 8-inch modern gun, which at present can not be used on account of danger to surrounding towns and railroads. The construction of a safe target in the mountain side for the use of this gun is strongly recommended.

SIEGE AND MORTAR BATTERY.

The guns and howitzers of this battery, with the exception of two, are old and obsolete, and the board recommends that they be replaced with those of modern type, and that the light battery used in the instruction of the fourth class, which consists of four guns, be increased by the addition of two guns.

BUILDINGS AND GROUNDS.

The care that is taken of the buildings and grounds of the reservation is highly commended.

The board is impressed, as has been former boards, with the desirability of refitting and remodeling the interior of the Library Building, so as to make it more suitable for the purposes of a library, and fireproof for the preservation of the valuable books and pamphlets, and does not consider the estimates submitted of \$63,100 for the alterations and of \$6,900 for removing and returning the books as excessive.

An appropriation of \$8,000 is recommended to refit the old army service barracks into a commissary storehouse.

Four thousand two hundred dollars is recommended for a porch to be erected around the cavalry barracks.

The cemetery was found to be in good condition, but showed a want of proper attention to the grass, flowers, plants, and trees, and the board recommend an appropriation of \$720 for a keeper to preserve the same in better repair.

MASTER OF THE SWORD.

The board urges the passage of an act giving the master of the sword the rank, etc., of a first lieutenant of infantry.

Very respectfully,

THE SECRETARY OF WAR.

H. C. CORBIN,
Adjutant-General.

An increase of the number of cadets for this great school has been recommended for several years by Boards of Visitors, and the recommendation of the present board is concurred in that twenty cadets annually, to be appointed by the President, and one appointment at large, to be nominated by each Senator, be authorized, in addition to the present number provided by law. This increase is urgently needed.

While all army, corps, and division commanders in the late war were graduates of West Point or officers of the Regular Army, as were all of the chief engineers, quartermasters, commissaries of subsistence, paymasters, surgeons, and ordnance officers, yet there was a great lack of subordinate staff officers for so large an organization.

The present organization of the Army is officered for 25,000 men, and to such an extent was it necessary to appoint Regular Army officers to places in the volunteer force that scarcely a company had more than one officer, although filled to its maximum with recruits; and in many cases, when an officer was killed, wounded, or taken sick, the company was commanded by noncommissioned officers. This should not be; it can be remedied in future by increasing the corps of cadets, thus supplying officers for growing needs.

The other recommendations of the board are judicious, and the Department will carry them out as far as it can; but where appropriations are necessary, it is recommended that they be granted so that the important work of the Academy may be conducted with the best possible results.

ADJUTANT-GENERAL'S DEPARTMENT.

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,

Washington, November 11, 1898.

SIR: I have the honor to submit the following summary of my annual report:

THE REGULAR ARMY.

On the 1st of April the strength of the Regular Army, just before the breaking out of the war, was 2,143 officers and 26,040 enlisted men, including hospital corps, engineers, and the signal corps. By the act of March 8, 1898, the artillery arm was increased by two regiments, to be composed of twelve batteries each, two of which, in each regiment to be organized, in the discretion of the President, as field artillery.

By general orders issued April 20, 1898, the equipment of each battery of light artillery was directed to include 6 guns and caissons, 1 combined forge and battery wagon, and 100 horses.

The act of April 26, 1898, prescribed the peace conditions of each regiment of infantry to consist of two battalions of four companies each and two unmanned companies, and authorized the President, upon declaration of war, to establish a third battalion of four companies each in the infantry arm, and increased the enlisted strength of a company of infantry to 106, a troop of cavalry to 100, a battery of heavy artillery to 200, of each battery of light artillery to 173, of each company of engineers to 150, and of the signal corps, by the addition of 10 corporals, 100 first-class privates and 40 second-class privates.

Under the authority thus given a third battalion was established for each regiment of infantry, and a sufficient number, not less than 20, of noncommissioned

officers and men selected with reference to their ability to assist in the instruction of the recruits, was ordered to be transferred to the new companies from other companies of the same regiment, and the company, troop, and battery organizations provided for in that act were ordered recruited to their war strength.

Under the authority conferred upon the President by section 4 of the act of April 26, 1898, he directed, July 13, 1898, an increase of the artillery arm of the service by the addition of 84 second lieutenants over and above the number provided by the act of March 8, 1898.

In view of the then possibilities of the near future, this office on the 16th of March last recommended an increase in the regular infantry, and submitted a draft of "A bill for the better organization of the line of the Army of the United States." This bill is published in full in my report, and also your letter of March 16, submitting it to Congress with your recommendation.

The following table exhibits the strength of the Regular Army for each of the four months following the declaration of war with Spain, as shown by the latest returns on file in this office:

Organization.	May.		June.		July.		August.	
	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.
General officers and staffs	535	2, 674	535	5, 012	550	6, 553	548	7, 989
Cavalry	435	7, 835	430	9, 912	419	10, 591	419	11, 594
Artillery	305	7, 660	317	9, 065	369	11, 308	369	12, 454
Infantry	916	15, 296	916	17, 333	989	18, 883	987	22, 458
Miscellaneous		8, 569		8, 191		6, 496		1, 679
Totals	2, 191	41, 934	2, 198	49, 513	2, 327	53, 931	2, 323	56, 365
Enlistments in Regular Army		9, 569		9, 311		6, 586		2, 400

a Includes 5,365 men of Hospital Corps, which are exclusive of authorized strength.

Three hundred and eighty-seven officers of the Regular Army were appointed in the several grades in the Volunteer Army, as indicated below:

Major-generals	15	Surgeons	44
Brigadier-generals	45	Paymaster	1
Assistant adjutants-general	58	Engineers	22
Inspectors-general	16	Ordnance officers	21
Judge-advocates	3	Signal officers	12
Quartermasters	43	Officers of volunteer regiments	68
Commissaries of subsistence	21		

THE VOLUNTEER ARMY.

By the act of April 22, 1898, providing for the temporary increase of the military establishment of the United States, the organized and active land forces were declared to consist of the Regular Army and of the militia of the several States when called into service, constituting two branches, designated, respectively, as the Regular Army and the Volunteer Army of the United States.

Section 6 provided that "When the members of any company, troop, battery, battalion, or regiment of the organized militia of any State shall enlist in the Volunteer Army in a body, as such company, troop, battery, battalion, or regiment, the regimental, company, troop, battery, and battalion officers in service with the militia organization thus enlisting may be appointed by the governors of the States and Territories, and shall when so appointed be officers of corresponding grades in

the same organization when it shall have been received into the service of the United States as a part of the Volunteer Army."

The same section further provided that the President may authorize "the Secretary of War to organize companies, troops, battalions, or regiments, possessing special qualifications, from the nation at large, not to exceed 3,000 men, under such rules and regulations, including the appointment of the officers thereof, as may be prescribed by the Secretary of War."

Section 7 authorized the recruitment to the maximum strength of all the accepted organizations in the volunteer force, and provided for the organization of regular and volunteer troops into divisions of three brigades, each brigade to be composed of three or more regiments, and authorized the President, whenever three or more divisions are present in the same army, to organize them into army corps, each corps to consist of not more than three divisions. By section 13 not more than one officer of the Regular Army could hold a commission in any one of the regiments of the Volunteer Army at the same time.

Finally, by the act approved May 11, 1898, Congress authorized, in addition to the volunteer forces provided by the act of April 22, the organization of a volunteer brigade of engineers from the nation at large, to consist of not more than three regiments and not more than 3,500 men possessing the special qualifications for engineer troops, the officers of this brigade to be appointed by the Secretary of War. The same act authorized also the organization of an additional volunteer force, not exceeding 10,000 men possessing immunity from disease incident to tropical climates, the officers of this force to be appointed by the President, by and with the advice and consent of the Senate.

Under authority conferred upon him by the joint resolution of April 20 and the act of April 22, 1898, the President issued a proclamation, dated April 23, 1898, calling for volunteers to the number of 125,000 men, to be apportioned as far as practicable among the several States, Territories, and the District of Columbia, according to population, to serve for two years unless sooner discharged.

The apportionment under this call aggregated 5 regiments and 17 troops of cavalry, 16 batteries of light artillery, 1 regiment and 7 batteries of heavy artillery, 119 regiments and 10 battalions of infantry.

May 25, 1898, the President issued a proclamation calling for an additional force of 75,000 men. For controlling military reasons it was determined to utilize so much of this additional force as was necessary to bring up the several State organizations in service to the full legal strength, the remainder to be apportioned among the several States and Territories according to their respective quotas as nearly as possible. The apportionment under this second call comprised 16 batteries of light artillery, 3 battalions of heavy artillery, and 22 regiments, 10 battalions, and 46 companies of infantry.

In view of the imminence of war with Spain, and in anticipation of the action of Congress and of the call of the President for volunteers, carefully prepared regulations were issued April 22, 1898, for the guidance and government of the numerous prospective mustering officers whose duty it would be to critically inspect the volunteer organizations that would be offered for muster into the service of the United States. The general orders, circulars, etc., are attached to the report in appendix for the muster, instruction, health, welfare, and comfort of the volunteers, whether in the field, in camps, in hospitals, on furlough, etc.—in fact, under all conceivable conditions—from the date of their reception into the service of the United States until their final discharge from military duty.

The following table exhibits the strength of the volunteer army at the several periods indicated:

Strength of the Volunteer Army.

Organisation.	May.		June.		July.		August.	
	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.
Major-generals	11	.....	12	.....	18	.....	21	.....
Brigadier-generals	25	.....	70	.....	70	.....	71	.....
Adjutant-General's Department	54	.....	98	.....	100	.....	99	.....
Inspector-General's Department	19	.....	30	.....	27	.....	25	.....
Judge-Advocate-General's Department	6	.....	7	.....	8	.....	8	.....
Quartermaster-General's Department	34	.....	32	.....	114	.....	121	.....
Subsistence Department	25	.....	87	.....	106	.....	106	.....
Medical Department	19	.....	84	.....	99	.....	113	.....
Pay Department	12	.....	65	.....	80	.....	86	.....
Corps of Engineers	10	.....	24	.....	28	.....	28	.....
Ordnance Department .....	.....	.....	.....	.....	25	.....	24	.....
Signal Corps	10	.....	101	897	112	1,089	111	1,173
Engineers .....	.....	.....	81	704	108	2,458	150	1,389
Cavalry	285	5,972	292	6,920	292	7,221	289	7,003
Heavy artillery	83	1,836	83	2,010	93	2,540	92	2,570
Light artillery	69	1,706	84	2,979	120	4,405	120	4,385
Infantry	5,562	109,066	5,969	139,845	7,238	185,748	7,819	188,947
Total	6,224	118,580	7,169	153,355	8,633	203,461	8,785	207,344

The patriotic response of the several States under the first call for volunteers and the activity of the officers detailed for duty in mustering troops are sufficiently indicated by the fact that on May 31, 1898, a little more than a month after the President's call for volunteers, nearly 125,000 men had been mustered into service. The muster in of the three regiments of cavalry was completed by May 30; that of the ten regiments of infantry (immune) by July 30; that of the three regiments of engineers by August 20; the last volunteer organization being mustered in August 24, 1898.

The aggregate strength of the Regular and of the Volunteer armies for each of the months of May, June, July, and August was as follows:

	Officers.	Enlisted men.	Grand total.
May:			
Regular Army	2,191	41,934	44,125
Volunteer Army	6,224	118,580	124,804
Aggregate	8,415	160,514	168,929
June:			
Regular Army	2,198	49,518	51,716
Volunteer Army	7,169	153,355	160,524
Aggregate	9,367	202,873	212,240

	Officers.	Enlisted men.	Grand total.
July:			
Regular Army.....	2, 327	53, 931	56, 258
Volunteer Army.....	8, 633	203, 461	212, 094
Aggregate.....	10, 960	257, 392	268, 352
August:			
Regular Army.....	2, 323	56, 365	58, 688
Volunteer Army.....	8, 785	207, 244	216, 029
Aggregate.....	11, 108	263, 609	274, 717

The suspension of hostilities, resulting from the short but brilliant operations of the army against Santiago, Cuba, leading to its capture and that of the Spanish forces defending the city, the surrender of the Spanish troops in Porto Rico, no less than the successful operations of our troops in the Philippines, led to the determination to muster out 100,000 men, nearly one-half of the entire volunteer force, and the first order looking to that end was issued on the 18th of August last.

Since the signing of the protocol the officers and men of the volunteer regiments have remained at their posts of duty, in most cases at great personal sacrifice. It is desirable, however, that a speedy increase of the Regular Army may be provided for in order that the volunteers may be released from further service and be allowed to return to their peaceful vocations.

The officers of the Regular Army detailed to make the examination and muster in of the volunteer regiments, also the officers detailed for mustering out volunteers, performed their duty with promptness and with great care.

STAFF ORGANIZATIONS.

If, as recommended in another part of the report, additional officers are given the line of the Army, so as to give plenty of trained officers for staff duty in time of war, it is believed that a general reorganization of the staff or the adoption of new systems will not be found desirable. Under the present system the great and successful campaigns of Grant, Sherman, and Sheridan were conducted; it has worked well in our Indian wars, and it is confidently asserted that when the work of the staff departments in this war is more fully understood it will receive the approval of military men and of the people generally.

MILITARY GEOGRAPHICAL DEPARTMENTS.

Important considerations led, early in the year, to a comprehensive rearrangement of the several geographical departments into which, for facility of military administration, the country is divided. Five new departments, those of the Lakes, the Gulf, Santiago, Porto Rico, and the Pacific, were created; the department of the Missouri was reconstituted; the departments of the Platte and of Texas discontinued; and the geographical limits of other departments were rectified.

The declaration of the war with Spain made the defense of the entire Atlantic seaboard against possible attack a question of the utmost importance. With this object in view, the governors of the several littoral States were freely consulted, and their active cooperation enlisted in favor of providing temporary garrisons, drawn from the State militia, for those exposed points where no defenses containing heavy guns existed, or where the defenses had either no garrisons or only small ones. Infantry supports were drawn, while war was in progress, from some of the volunteer infantry, heavy artillery, and light batteries organized under the first call for troops, and the organizations were recruited to war strength of twelve companies.

The number of men so utilized was, approximately, 12,000. After cessation of hostilities, in July last, the infantry supports were transferred to inland camps, the withdrawal being completed by September 1, 1898.

ARMY CORPS.

On April 15, 1898, the regiments of the Regular Army, with few exceptions, were ordered to proceed to designated points in the South.

On April 23, 1898, the troops assembled in the Chickamauga National Park (Camp George H. Thomas) were constituted a provisional army corps, under Maj. Gen. John R. Brooke.

By direction of the President, May 7, 1898, seven army corps were constituted, embracing both the regular and volunteer branches of the Army; and later, June 21, the forces comprising the Philippine expedition were constituted an army corps, to be known as the Eighth.

The subjoined table exhibits the strength and distribution of the Army by departments and army corps.

Command.	May.		June.		July.		August.	
	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.	Officers.	Enlisted men.
Department of California...	98	2,176	87	1,716	70	1,745	100	2,300
Department of Colorado...	45	966	39	1,250	41	1,329	40	1,516
Department of Columbia...	21	431	38	907	41	1,256	43	1,416
Department of Dakota.....	24	662	16	722	67	2,056	32	965
Department of the East.....	530	12,093	586	15,576	577	17,240	804	23,248
Department of the Gulf....	230	4,921	232	5,792	249	7,228	280	7,262
Department of the Lakes...	18	221	31	597	38	646	20	185
Department of the Missouri	23	757	20	591	20	598	19	522
First and Third Corps.....	2,191	42,036	2,004	56,544	1,563	42,260	438	12,725
Second Corps	903	17,406	867	22,624	802	21,378	768	20,688
Fourth Corps	342	7,456	763	20,058	548	13,485	413	9,833
Fifth Corps	769	15,657	791	14,945	890	18,619	518	14,347
Seventh Corps	496	8,847	781	18,375	909	23,193	1,025	27,817
Eighth Corps (Department of the Pacific)	636	13,179	865	22,124	917	22,536	899	23,046
Porto Rico.....					377	9,064	641	16,332
Department of Santiago...							289	6,748
At State camps, en route, at recruiting stations, on furlough, etc	2,089	33,716	2,227	20,957	3,861	74,739	4,771	95,479
Grand total.....	8,415	160,514	9,367	202,868	10,960	257,392	11,108	263,608

CASUALTIES.

A statement is given of the several actions in which troops were engaged during the war with Spain and of the losses sustained by them from April 21 to August 13, 1898, including the names of all officers killed and wounded.

Grand total of casualties in killed and wounded during the war with Spain.

Where.	Killed.		Wounded.	
	Officers.	Enlisted men.	Officers.	Enlisted men.
Cuba	23	237	99	1,332
Porto Rico.....		3	4	36
Manila.....		17	10	96
Total	23	257	113	1,464

The number of deaths from all causes, between May 1 and September 30, inclusive, as reported to the Adjutant-General's Office up to October 3, were: Killed, 23 officers and 257 enlisted men; died of wounds, 4 officers and 61 enlisted men; died of disease, 80 officers and 2,485 enlisted men. Total, 107 officers and 2,803 enlisted men, being an aggregate of 2,910 out of a total force of 374,717 officers and men, or a percentage of 1.783.

BREVETS AND MEDALS OF HONOR.

A board of officers will soon be convened, in accordance with your instructions, to examine all recommendations for brevets and medals of honor for services in Cuba, the Philippines, and Porto Rico.

INCREASE OF THE REGULAR ARMY.

A bill is now being prepared providing for an increase of the Army, which will be ready to submit upon the assembling of Congress.

It is believed that the number of officers should be increased by one first lieutenant to each troop, battery, and company, for reasons stated in full in the report; and it is recommended that all officers below the rank of major, serving in the West Indies and the Philippines, shall have the pay and allowance of the next higher grade.

GENERAL OFFICERS.

The requirements of probable service in Cuba and elsewhere call for an increase of general officers in the permanent establishment. There should be at least an increase of two major-generals and four brigadier-generals. Provision for the grade of lieutenant-general is called for by the best interests of the public service.

ADJUTANT-GENERAL'S DEPARTMENT.

Brig. Gen. Samuel Breck, an officer of high order and ability and of long and faithful service, was retired February 25, 1898, under the provisions of law, and the undersigned succeeded to the office of adjutant-general.

Five officers of the Department have been appointed brigadier-generals of volunteers, namely: Cols. Michael V. Sheriden, Theodore Schwan, and Lieut. Cols. Arthur MacArthur, John C. Gilmore, and John B. Babcock, and one has been promoted to major-general of volunteers for distinguished service in the battle of Manila, namely, General MacArthur.

MILITARY INFORMATION DIVISION.

The publications of this division, including maps and handbooks of Cuba, Porto Rico, and the Philippines, have been numerous and widely distributed.

MISCELLANEOUS.

In the report a number of minor matters are considered. A modification of the act of August 1, 1894, in regard to enlistments, is recommended, to the end that the enlistment of natives for service in regiments serving in Cuba, Porto Rico, and the Philippines may be authorized; statistics are given as to the recruiting service; an increase of the appropriation for the militia is recommended, as also for the post-graduate schools at Forts Leavenworth, Monroe, and Riley; suggestions are made for the improvement of post schools and lyceums. Increased rank should be provided for officers serving as military attachés. It is suggested that the number of yearly Presidential appointments to the Military Academy be increased to twenty, and that two appointments at large be authorized to be nominated by the Senators from each State; that the pay of noncommissioned officers be increased; that regimental bands be increased, and that the clerical force at Army and Department headquarters be reorganized.

THE ADJUTANT-GENERAL'S OFFICE.

Owing to the large increase of business following the declaration of war with Spain, the number of temporary clerks appointed in this office has steadily increased, and is now 141, largely composed, since the cessation of hostilities, of men from the Regular and Volunteer Army, who, having the requisite qualifications, were thus partially rewarded for the trials and hardships endured by them in the service. The physical endurance of the force has been taxed to the utmost. It has labored, regardless of hours, with a gratifying degree of success, considering the serious inconvenience resulting from crowded rooms and the growing insufficiency of space for the office records and files.

To the officers serving in the office acknowledgment for their devotion and faithful and intelligent performance of duties under trying conditions is freely made.

The uniform courtesy and cooperation of the heads and officers of other staff departments are gratefully acknowledged. Under all the trying conditions there has not been a sign of discord. All have vied with each other in an intelligent and faithful performance of duty. The clerical force of the office has been no less diligent and faithful and richly deserve recognition.

Very respectfully,

H. C. CORBIN, *Adjutant-General.*

The SECRETARY OF WAR.

The foregoing report summarizes the legislation enacted by Congress increasing the Regular Army and providing for an Army of Volunteers during the war with Spain.

Attention is invited to the suggestions and statistics contained in the report of the Adjutant-General, and to his various recommendations, which are judicious and merit the favorable consideration of Congress.

The recommendation in my report last year is renewed, that military attachés to embassies be given the rank and pay, while serving, of colonel; and the attachés to legations be given the rank and pay of lieutenant-colonel, while serving, or at least the rank and pay of major. The reasons for this are well stated by the Adjutant-General in his full report.

Instead of the increase of pay for officers serving in the West Indies and the Philippines, recommended by the Adjutant-General, viz, the pay and allowance of the next higher grade for all officers below the rank of Major, it is recommended that their pay, as also the pay of those stationed in Alaska, be increased 50 per cent while so serving; this because of the additional expense of serving in those countries.

INSPECTOR-GENERAL'S DEPARTMENT.

WAR DEPARTMENT, INSPECTOR-GENERAL'S OFFICE,
Washington, D. C., November 7, 1898.

SIR: In compliance with instructions, the following summary of matters mentioned in the annual reports of this department for 1898, and possibly requiring legislative action, is submitted:

THE NATIONAL GUARD.

Recent experiences have shown that our militia system could advantageously be reconstructed and a more intimate relation established between it and the National Government.

SMALL ARMS.

The National Guard should be armed with the same kind of rifles as the Regular Army, if we wish the most effective service. Besides, the difference in the manual of arms prescribed for differently constructed rifles, and want of interchangeability of ammunition, are apt to cause confusion and delay where prompt action is required.

SUPPLY DEPOTS.

The great number of volunteer regiments moving to the centers of concentration without arms or uniforms, and the subsequent difficulties in meeting their needs promptly, suggest the establishment of reserve or supply depots at convenient points, in order that each State, on call, can put its quota in the field in condition for service, at least as far as arms and equipments go.

STRATEGIC STAFF.

The great need in the Army to insure coherence, promptness, and efficiency in the field is a strategic staff, composed of highly trained and trustworthy officers, such as possessed by all continental armies, who, free from the overwhelming details of paper work, can give their undivided attention to the systematic preparation and execution of all important military affairs. Such a staff would permit no symptom of chaos, hold all to their full and proper work, and mold the organized forces and control their movement so they would respond to their slightest touch.

CAMPS AND MANEUVERS.

To secure better cohesion between the National Guard and regulars and the greatest efficiency of the troops in the field, funds should be provided for combined encampments and periodical military maneuvers and experimental mobilization in times of peace, as is customary with all first-class European powers. One of the most serious defects noted during the Spanish-American war was the inexperience and utter disregard for the most elementary principles of military life in large camps.

INDEMNITY FUND.

It has been found that crops and fencing of farms and other property are occasionally damaged in the movements and maneuvers of troops. Such damages are generally slight, and if they could be paid immediately it would be an act of justice, insure the good will of the people, and avoid much labor and expense in effecting a settlement afterwards. It is recommended that a small sum be appropriated for this purpose, as is done by other civilized nations.

TRANSPORTATION ON THE SEA.

It seems apparent, in view of future movements of troops made necessary by our changing national policy, a transport system should be organized and the control of this important service most completely organized or confided to the Navy. During the transmarine expeditions much friction is apt to be developed between captains engaged with each vessel and whoever controls affairs and their movements, whether a quartermaster, naval officer, or the commander of the troops aboard, which might interfere, seriously in some cases, with the prompt accomplishment of the task imposed upon the military commander.

PACK TRAINS.

As pointed out in former reports, in military operations over rough country the use of wheeled transportation is very limited, and pack trains become of prime importance; and it is suggested that a system be devised by which the Government can have a corps of trained civilian teamsters and packers for this service. Obviously, soldiers should not be taken from the fighting line for this purpose, even if fit. It is

of moment that the employees be expert in their work, as untrained hands may within a week cripple the transportation of an army. The depletion of the trained transportation at many military posts years ago seems felt as a serious injury throughout every effort at mobilization now.

HOSPITAL CORPS.

It has been clearly demonstrated that the proportion of hospital stewards and trained hospital corps men to the fighting force is far too limited and should be increased, say to about 4 to 8 per cent for the firing line or entire service.

RATIONS.

The component parts of the ration as now fixed by law should be changed or made more elastic to meet the new conditions of service in the tropics; and articles required by convalescing patients, suffering from fever and disturbances of the alimentary tract, should be added to some branch of supply.

MILITARY COLLEGES.

If the permanent force is to be increased, it is recommended that the annual selection of a few of the most efficient military students for appointment to the Army under suitable regulations be made a settled policy; and that college organizations seeking active service be given a chance to join the forces in future calls for volunteers. It would give increased impetus to the study of military science and tactics at these institutions and establish closer relations between these organizations and the Government.

INSPECTOR-GENERAL'S DEPARTMENT.

In the recent mobilization and concentration of the Regular and Volunteer armies, the great lack of capable and well-organized inspectors-general was severely felt, particularly during the earlier stages, when the inexperienced troops were suffering for want of such attention as only an inspector, unhampered by other duties and working under central supervision and with the conscious support of the highest authority, can give. It is recommended that the law be amended so as to authorize an assistant inspector-general for each brigade, and one with the rank of colonel for the corps or higher commands; and that all should undergo a preliminary examination to demonstrate their suitability and efficiency. At present the smallest part of an army corps entitled to an inspector is the division, and that has been found too large for one inspector to look after thoroughly and do all that ought to be allotted to officers of this Department in the field.

It is also urgently recommended that the clerical force of the Inspector-General's Office and Corps be increased to meet the increased demands upon it adequately and efficiently.

Very respectfully,

J. C. BRECKINRIDGE,
Inspector-General.

The SECRETARY OF WAR.

The following extracts are from the report of Major-General Breckinridge, who went with Major-General Shafter's command, by order of the Major-General Commanding the Army, to observe the movements of troops in Cuba, June 5 to July 25, 1898:

ON BOARD TRANSPORT HUDSON,

En route from Santiago de Cuba to the United States, July 25, 1898.

SIR: The energy with which every element was driven from first to last will be sufficiently understood when such men as General Shafter and Colonels Humphrey and Weston had the task in hand. The liberality with which every necessary article was purchased that could be found in the market goes without saying. But

the means for expediting the landing of stores seemed inadequate, even to the last, and it is understood that lighter after lighter, ordered to the Cuban coast, was sunk at sea; and the lack of quick communication between the vessels or of any launches was apparently irremediable. The extent to which the transports suffered in their ground tackles, capstans, small boats, and other paraphernalia, and the dread their masters had of even greater loss on such a surf-beaten, rock-bound shore, was constantly shown, and the Navy appeared to leave the Army at last much to its own devices.

It was natural to suppose that there might well be heavy loss in such an adventure at at least three points, to wit: The landing place, at some intermediate fortified position, like San Juan, and in the final assault or contest; but all the loss in battle was concentrated practically in the single battle of the 1st and 2d of July. The several organizations appear content with how they played their own part and with their immediate commanders, and look upon the demands made upon them as at least up to the usual powers of man and worthily met.

Great security was given to the enemy by the blockhouses, wire entanglements, etc., created during the long course of defensive construction for the purpose of dominating the country from the insurgents; and it is remarkable that such ubiquitous defenses were not more frequently defended. Special interest was given to this battle, where our men for the first time faced smokeless powder in rapid-fire Mauser guns, handled by men in invisible rifle pits, to whom every ford and road were absolutely familiar objects. To most of our enlisted men, all of whom were regulars but three regiments—the First Volunteer Cavalry, Second Massachusetts, and Seventy-first New York—this was the first battle against a civilized foe. In peace our Army is administered rather by posts and departments, and our staff officers are diligent at their desks, especially in the bureaus. Now the regiments and brigades were recognized in campaign, where nearly every officer is performing unwonted duties, even among the regulars, so there are some of the usual indications of unfamiliar occupations.

On the 28th the reinforcements land and go into camp near Siboney. On the 29th General Shafter came ashore with his staff, moved out to the front, and there established his headquarters beside General Lawton's. General Ludlow had assumed command of his brigade and reconnoitered the commanding ground on the left of the road well beyond El Poso.

We were told when we entered upon this campaign that it was necessary above all things to sleep off the ground, and hammocks were recommended to secure this end. Some were seen in the original bales on the transports, and it is doubtful whether the soldiers could have carried hammocks in addition to what they already have to carry. Even such heavy intrenching tools as were on hand were felt to be a burden.

Perhaps it is possible to make a hammock that will at once furnish shelter and keep the soldier from the ground, which would have a material effect in preserving the health of the soldier during the rainy season in this climate. That there should be any suffering or ill health along the firing line for lack of food, clothing, modern arms, or other supplies may appear either temporarily necessary or hardly credited, according to the point of view; especially during the days it seemed no tents and but little eating, and no animals were possible, on the advance or fighting line. The need of witnesses from every corps and bureau of the Army may not have been appreciated, if, indeed, any were needed. What the Army cheerfully endured and accomplished with its valor deserves the clearest appreciation, and has, doubtless, received it; and protection against unnecessary deprivations is, of course, always assured.

Some men, notably among the volunteers, started out carrying overcoats. These were left on the transports or quickly abandoned. In some cases even blankets, blouses, and underclothing were thrown away. Knapsacks were strewn along the roadides. And yet it is almost as difficult in this climate to keep warm at night as

it is to keep cool in the daytime, as there is hardly a night when a covering is not needed in addition to the usual clothing worn, and never a day when the usual clothing is not uncomfortably warm. What became of personal property wherever left will possibly prove a problem to some to solve.

A serious question that seems ever to return for sufficient consideration is, What shall be done with the soldier's heavy pack when he goes into action? Shall he carry it with him, weighing him down in the charge and pursuit, or shall he throw it aside, never to see it again, perhaps? In the battles of July 1 and 2 it became, in most cases, a physical necessity to throw the pack aside. In some cases regiments deposited their packs by the roadside and marched some miles after the battle to recover them again. In others, packs were thrown haphazard into the bushes, and in many cases were never recovered by their proper owners. Apparently the Cubans and sick found some comfort from the owner's loss.

It has certainly been clearly demonstrated in this war that smokeless powder is an absolute necessity for both small arms and field guns. Often we fought for hours against an invisible enemy who was firing fatally upon us all the time. The volunteers, as soon as the Springfields were fired, at once revealed their position and drew the fire of the enemy, besides hiding the enemy from their view. They found it difficult to contend with an invisible enemy pouring in an effective fire from a position impossible to determine.

General Shafter seemed to perform six men's work, and the organizations displayed a coherence and power that won universal admiration and made every call upon the forces fully met, from squad and company leader up, under circumstances illustrated by the successive loss of four brigade commanders within a half hour.

If any recognition is to be fairly given to the staff work of such a famous military expedition, attention is perhaps doubly due the supreme labors of Col. C. F. Humphrey and Col. J. F. Weston, who did more work and endured more than many men are capable of, and they are working at a financial loss, since their commutation of quarters is stopped. And Lieut. Col. G. McC. Derby, of the Engineers, and some of the medical officers have labored in their line with unending energy and under difficulties and dangers rivaling past records of their corps. What man could do these men have done.

Always throughout his career good judges seem to have recognized that in every exigency of campaign and battle Lawton was capable of adequately performing more than was ever assigned to him, though some of the severest military tasks and duties have been performed by him. This judgment still stands well established, though the command of a division of regulars and the front and swinging right wing of an invading and assaulting army have been intrusted confidently to his command. The reserve force and quiet self-control with which every step in action was conducted equaled his proverbial energy, endurance, courage, and tenacity. And it is believed his immediate commander (General Shafter), whose force and energy are also phenomenal, appreciates the soldierly qualities of his loyal subordinate fully, as on his recommendation promotion has been given for conduct on the field of battle; but as an eyewitness this testimony to well-proven military merit may be also permitted to the Inspector-General of the Army.

Of course his immediate superiors, both in advance of and since the Santiago expedition, have carefully determined the military and personal qualities of the commanding officer of this expedition; but if permitted me, it seems due that I shall bear willing testimony to the remarkable energy, decision, and self-reliance which characterized General Shafter's course during this distinguished military adventure throughout its arduous course to its most honorable conclusion. At every stage of this proceeding General Shafter was the dominant spirit at the scene of action. Oppressed by sickness and overweighted with responsibilities and care, he carried the fate of his army to a successful and glorious issue. And any precedent is rare where amidst such natural obstacles, and dangers, and limited means, and opposing defenses, a more numerous, well-disciplined, and gallant force capit-

ulated to invaders who had upon their fighting line a smaller force than that surrendered. The glory of this belongs to General Shafter and his army and the Administration sustaining it. And whatever influence was felt from this army toward the driving out and destruction of the Spanish fleet may also go to its credit.

Very respectfully,

J. C. BRECKINRIDGE,

Major-General of Volunteers and Inspector-General U. S. A.

The question of payment for damages to farms and other property by movement of troops will be the subject of a communication to Congress during the ensuing session.

JUDGE-ADVOCATE-GENERAL'S DEPARTMENT.

WAR DEPARTMENT, OFFICE JUDGE-ADVOCATE-GENERAL,

Washington, October 3, 1898.

SIR: I have the honor to submit the following summary of my annual report for the twelve months ending August 31, 1898:

The number of trials by general court-martial in the Regular Army was 1,245, which is 139 less than last year. The number of trials by general court-martial in the Volunteer Army up to August 31, 1898, inclusive, was 635. The number of convictions of desertion in the Regular Army was 176, which is 68 less than last year; and the number in the Volunteer Army was 18.

These figures are only approximately correct, as not all the records of the trials promulgated prior to September 1, 1898, have been received, owing to the fact that the Army is widely scattered.

At the last session of Congress an act was passed making the summary court the regular permanent inferior court-martial, both in time of peace and of war; and there has also been issued a new Executive order fixing the limits of punishment. These two measures have been adopted in order to remove defects in the system of administration of military justice which the experience of the Army had pointed out; and the system is now on a good footing, with one exception. This exception is the lack of power on the part of courts-martial to compel civilian witnesses to testify. There have heretofore been failures of justice on this account, and during the present year a general court-martial sitting in an important case has been shut off from material evidence by the refusal of civilian witnesses to answer legal questions. It is to be hoped that Congress will afford some relief—if not by giving general courts-martial the power to punish for contempt, at least in such other form as may be deemed best.

The number of officers in the Judge-Advocate-General's Department has been insufficient to meet the demands made upon it, even with the small army we have had. With an army enlarged as it seems likely that ours will be, the increase of the Judge-Advocate-General's Department will be necessary. It now consists of only eight officers. With an army of 100,000 men, or even 75,000 men, double that number would be required.

Very respectfully,

G. N. LIEBER,

Judge-Advocate-General.

THE SECRETARY OF WAR.

The Judge-Advocate-General points out the fact that there have been failures of justice by reason of the lack of power on the part of courts-martial to compel civilian witnesses to testify. It is hoped that the necessary legislation may be enacted to afford relief in this respect.

There is now need of an increase in the corps of judge-advocates, and this need will be the greater if the Regular Army is increased.

The amount of the reward for the apprehension of deserters was formerly left to the discretion of the Secretary of War. For many years \$30 was the amount designated; this not being considered sufficient, it was increased to \$60. In 1894 Congress prescribed that the amount should be \$10. This amount is entirely insufficient, and the Judge-Advocate-General reports that, in the opinion of many who are in the best position to judge, it encourages desertion. A return to the former system, whereby the amount of the reward was regulated by the Secretary of War, was urged in the last annual report, and the necessary legislation is again recommended.

QUARTERMASTER'S DEPARTMENT.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, October 31, 1898.

SIR: In accordance with your request of the 18th instant, I have the honor to submit below a summary of my annual report for the fiscal year ended June 30, 1898, which also covers all important transactions of this Department down to the close of hostilities with Spain, August 12, 1898:

There was appropriated for the regular service of the Quartermaster's Department for the fiscal year ended June 30, 1898, the sum of \$7,711,367.75, of which the sum of \$340,154.71 remained undrawn at the close of the fiscal year.

There was also appropriated for this Department by act approved May 4, 1898, for deficiencies, available until January 1, 1899, the sum of \$19,550,000, and by act approved July 7, 1898, a further sum of \$103,200,000, making a total of \$130,461,367.75 provided by Congress for the purposes of this Department.

With all the perplexing difficulties confronting the Department in the matter of clothing and equipage supplies, it is remarked that in the short period of three and one-half months an army of 275,000 men was equipped with such supplies, and it is further remarked that the army in Cuba, consisting of nearly 16,000 men, leaving their tentage behind, arrived at their camp at Montauk Point, New York, and found a complete new outfit of tents and clothing ready there for them.

The issues to the militia of the several States and Territories during the fiscal year amounted to \$189,870.72.

For the maintenance of the Indian prisoners of war, held captive at Fort Sill, Okla. Territory, the sum of \$8,234 was expended.

From April 1, to August 31, which covers the period of hostilities, this Department purchased 36,800 horses and mules, at an aggregate cost of \$3,871,690.08; 5,179 wagons of all kinds, at a cost of \$478,111.10; and 28,012 sets of harness, at a cost of \$358,449.18.

During the war period there was also purchased 5,130 field ranges, at a cost of \$106,742, and 5,434 field desks, at a cost of \$38,471.80.

Eighty-three thousand and seventy-eight tons of coal were contracted for, for use of transport vessels.

TRANSPORTATION BY RAIL AND WATER.

During the fiscal year ended June 30, 1898, transportation was furnished for 709,617 persons, 60,632 animals, and 1,529,585 tons of materials.

From April 1, 1898, to the breaking up of Camp Wikoff, the aggregate movements of troops by rail amounted to 17,863 officers and 435,569 men.

The total movement of troops by transport ships up to September 15, 1898, amounted to 92,836, as follows:

	Men.
To Cuba.....	28, 195
To Porto Rico	17, 460
To Manila	16, 405
To Honolulu.....	629
Returned from Cuba	21, 686
Returned from Porto Rico.....	5, 541
Civilian employees transported	2, 920
Total	92, 836

The orders for the movement of the regular troops to Chickamanga, New Orleans, Mobile, and Tampa were sent out by the Adjutant-General of the Army about the middle of April, 1898.

The troops were put in motion as fast as arrangements with the railroad companies could be perfected, and were rapidly assembled at the points designated by the War Department. These troops were moved with the most satisfactory dispatch and an entire absence of accident.

On May 13 the Adjutant-General sent to the Quartermaster-General the first orders for the movement of volunteers—a separate order for each organization—designating the point of destination. The volunteer troops have gone to destinations with promptness and remarkable freedom from accident or delay en route.

Low rates were secured by the Quartermaster's Department in making these movements, generally not exceeding 1½ cents per mile for passengers, and in many cases much less, and about one-half the prevailing tariff rates for freight in excess of 150 pounds per man carried free.

A special outfit was provided, under orders of the Secretary of War, to be used by the Surgeon-General as a hospital train. This train was made up of 10 tourist sleepers, 2 kitchen and dining cars, and a combined passenger and baggage car. It was furnished by the Medical Department, placed in charge of its trained nurses, and kept exclusively for the purpose of carrying sick and wounded to points designated by the proper medical officers.

The sum of \$90,757.34 was expended during the fiscal year to maintain, including repairs, the eleven vessels owned by this Department, which is exclusive of the transports chartered and purchased for the prosecution of the war with Spain.

From the declaration of war to June 30, 1898, this Department chartered for service on the Atlantic and Gulf waters 43 vessels, with a total tonnage of 104,201 and a carrying capacity of 1,287 officers, 22,335 men, with their arms, ammunition, equipment, medical and subsistence supplies, and 6,746 animals. There was also chartered 4 water boats, with a total capacity of 820,000 gallons; 3 lighters, 2 tugs, and 1 barge; also 2 barges purchased.

In addition to the above there were chartered for the Signal Service of the Army the steamship *Adria*, used as a cable boat; the steamship *Fanita* for the Secret Service, and the steamer *Gretchen* for inspection purposes.

The operations of the navy in the harbor at Manila required that provision be made for the transportation of troops and supplies to the Philippines.

Fourteen ships were chartered to June 30, 1898, on the Pacific coast, having a total tonnage of 41,152 and carrying capacity of 629 officers and 13,059 men with their complete outfit of camp and garrison equipage, arms, ammunition, medical and subsistence stores for a voyage of over 7,000 miles.

The combined fleets on the Atlantic and Pacific coasts at the close of the fiscal year consisted of 69 vessels of various classes, with a total tonnage of 145,353 tons and carrying capacity of over 37,000 men.

To convert the vessels composing these fleets from their ordinary uses as freight

vessels into safe and commodious transport ships required considerable alteration. Sleeping accommodations for the men and stalls for the animals had to be constructed, largely increased water capacity had to be provided by the construction of extra tanks and the supply of barrels and casks, and provision made for pure-air ventilation. For this last-mentioned purpose many of the vessels were supplied with electric plants for running fans and for lighting the ship. Special care was given to the fitting out of the transports on the Pacific coast so as to provide for the long voyage to Manila.

The total expenditures for fitting up these vessels (as far as reported) to June 30, 1898, amounted to \$186,632.68, which includes the sum of \$7,694.30 for fitting up the steamship *City of Peking*, which was chartered by the Navy Department and turned over to the War Department for transportation of the Army.

The total sum paid for the services of vessels under charter to June 30, 1898, was as follows:

On Atlantic coast and Gulf waters.....	\$1, 007, 952. 50
On Pacific coast.....	319, 764. 17
Total.....	1, 327, 716. 67

To provide for the transportation of the sick and wounded, this Department purchased from the Maine Steamship Company the steamship *John Englis* for the sum of \$450,000. This ship was fitted up at considerable expense as a hospital ship, and every appliance provided for the care, comfort, and treatment of the sick and wounded. The expenditure for refitting amounted to \$136,851.11. This hospital ship was renamed *Relief*, and is under the control of the Medical Department of the Army.

Since the close of the fiscal year the steamship *Missouri*, used by the Medical Department of the Army as a hospital transport, has been fitted up for that purpose by the Quartermaster's Department at an expenditure of \$85,854.

Since the 1st of July, 1898, there have been chartered four vessels for service on the Atlantic coast and the same number on the Pacific coast.

There were also purchased for the service of the Army on the Pacific Ocean two large, commodious steamships, the *Scandia* and *Arizona*, which have been fitted up, the former as a hospital ship and the latter for the transportation of troops and supplies to the newly acquired islands of the Pacific Ocean.

The Secretary of War directed the purchase of 14 large steamships to be fitted up to meet the needs of the Army for the safe and comfortable transportation of men and animals and the transportation of army supplies. These 14 steamships have a total tonnage of 61,298 tons and carrying capacity of 12,700 men and 6,750 animals. To fit these vessels up comfortably to meet the urgent demands of the Army required an expenditure of \$178,018.37. It is the intention to carefully overhaul all of these vessels and refit them for the army transport service.

The aggregate cost of the 16 steamships purchased by the Government, which includes the *Scandia* and *Arizona*, heretofore mentioned, was \$6,231,000. Total cost of tugs, barges, and lighters amounted to \$245,300.

The fleet of transport ships which was concentrated at Port Tampa, Fla., in June last, for the transportation of the army of General Shafter to Cuba, consisting of 38 vessels, including 2 water boats, 3 steam lighters, 1 collier, and 1 tug, had been fitted out for a voyage to the vicinity of Havana, distant about 400 miles. The vessels carried with them 153 small boats, having a carrying capacity of 2,500 men. The fleet also had two decked barges which were provided by the Engineer Department. One of the steam lighters, the tug, and one decked barge failed to reach Cuba.

Upon embarkation of the troops it was found that the vessels would not safely and comfortably carry more than 16,000 men, with their 2,295 animals, equipments, ammunition, subsistence, and medical supplies, on a voyage of 1,000 miles.

This entire fleet arrived without serious mishap at Daiquiri. Upon disembarkation of the army difficulty was encountered by reason of the lack of sufficient means for lightering the transports which could not approach the small dock at Daiquiri, and this office was advised of the needs of the command. Active efforts were immediately made by this office to supply the needed lighterage. Two decked barges in tow of the U. S. S. *Fern* were dispatched at once from Key West, Fla., which arrived safely, but were wrecked the day after their arrival. A seagoing tug, the *Nimrod*, chartered in Mobile, with three barges in tow—the *Ora*, *Ben*, and *Towart*—the former chartered, the last two purchased, by the Department, was dispatched, with orders to proceed direct to Santiago, and the chartered seagoing tug *Underwriter*, with two decked barges belonging to the Engineer Department of the Army, was dispatched to Santiago from New Orleans. These tugs lost all their barges and only one of the tugs succeeded in reaching Cuba. Under instructions from this office the steam-lighter *Bessie* was dispatched from Tampa to Santiago, but, her boilers springing a leak, she returned to Tampa for repairs.

These unsuccessful efforts to relieve the situation of the army in Cuba led the Department to enter into contract with the firm of D. Van Aken & Co., of New York City, to fit out an expedition, with a large force of mechanics of various trades, and laborers, with machinery, such as pile drivers, implements for construction of docks and railways, with the necessary materials, iron and lumber, for building docks, lighters, repairing railroads and engines. The company was furnished the steamship *Panama*, and two fine ocean tugs, the *Gladiolen*, which was chartered, and the *Gypsum King*, which was purchased. This outfit proceeded to Santiago and thence to Ponce, Porto Rico, where their services have been of great value in the operation of the army in that harbor.

Upon the cessation of hostilities in Cuba it became necessary, on account of sickness prevailing among the troops, to return General Shafter's army. The sick and wounded who were able to make the voyage were first considered in the matter of return, and these were brought to this country and placed in hospitals in the various coast cities. Montauk Point, Long Island, having been selected as a reception camp for the returning army, preparations were made for the safe and speedy landing of the troops as they arrived and for the supplies required by them. For this purpose there were chartered eight small vessels and two flatboats, besides the steamer *Skaneateles*, 1,205 tons burden, which was employed to afford easy and comfortable transportation for the sick troops to other points where they might be sent for treatment.

The movement of troops to Porto Rico consisted of about 16,000 men, 3,367 animals, with their artillery, equipments, and supplies, and a large quantity of ammunition and army wagons. Of these troops 5,581 men, with 256 convalescents, have been returned to the United States.

Seventeen large steamships and one large sailing vessel were chartered by this Department for the transportation of troops and supplies to the Philippine Islands, besides the two steamships purchased for this service. Transportation was furnished from San Francisco to Manila for 16,405 persons, with their equipments and supplies.

Upon the acquisition of the Hawaiian Islands, the First Regiment New York Volunteer Infantry was ordered to Honolulu for garrison duty. A contract was made for the transportation, at a per capita rate, of three companies of that regiment by a merchant vessel, 11 officers and 313 men, who sailed from San Francisco on August 18. The remainder of the regiment, 10 officers and 293 men, sailed for Honolulu on August 27 on the steamship *Scandia*, a vessel owned by the Quartermaster's Department, showing a total of 629 persons transported to Honolulu.

TRANSPORTATION OF SPANISH PRISONERS OF WAR.

Under the terms of capitulation for the surrender of Santiago de Cuba to the American army, it was agreed that transportation should be furnished by the United

States Government for the Spanish prisoners of war to Spain, and to provide subsistence for them while en route. The proposal submitted by an American citizen on behalf of the Spanish Trans-Atlantic Company was accepted. The rates to be paid under the terms of the contract were for commissioned officers \$55 per capita and for enlisted men \$20 per capita, the men to be delivered on the ships by the United States.

The only other bid from responsible parties, and who represented steamship companies having facilities to carry out the contract, was the combined bid of the Anchor Line, Cunard Steamship Company (Limited), Hamburg-American Packet Company, Robert M. Sloman & Co., Frederick Leyland & Co. (Limited), North German Lloyd Steamship Company, Royal Mail Steam Packet Company, Thomas Wilson Sons & Co. (Limited), and Wilson & Furness Leyland Line (Limited), which bid was for officers \$110 and enlisted men \$55 per capita, steamers to be dispatched from Santiago de Cuba within forty-eight hours of their reported arrival, or demurrage to be paid at the rate of 60 cents per capita per day, passenger capacity; if passengers are on board during such delay, 40 cents additional per capita per day. Same demurrage rates to be paid if steamer be detained at place of debarkation by quarantine or other cause. Will endeavor to have vessels at Santiago de Cuba between July 30 and August 10, 1898, but desire, if necessary, an extension of time to include the entire month of August.

As will be observed, this bid had demurrage conditions which would have amounted to a large sum in addition to the per capita, amounting for the actual number transported to \$1,312,915, whereas the contract entered into had no demurrage conditions and the actual sum paid was \$513,860.

The Government decided to include in the transportation the wives and children of the officers, and the priests and sisters of charity who had been in service in the hospitals and with the Spanish army.

The embarkation began on August 9, 1898, and was completed on September 17, 1898, and 22,864 persons were embarked.

The cost for this service, as above stated, amounted to \$513,860.

WEEKLY STEAMSHIP LINE.

The permanent occupation of the islands of Cuba and Porto Rico by the army has rendered necessary the transportation of large quantities of army supplies to those islands, and also the mails for the troops. It was, therefore, determined to establish a regular weekly line of steamships to sail from New York to points in Porto Rico and Cuba and return to New York. This line was opened Wednesday, August 31, 1898, since which time a steamship has sailed from New York every Wednesday for Ponce and Santiago, and return.

TRANSPORTATION OF RELIEF SUPPLIES.

Large quantities of supplies have been transported by the Quartermaster's Department to Cuba for the relief of the people on that island upon the request of the officers of the Red Cross Society, National Relief Association, and other kindred associations and individuals interested in the work of relief of the suffering Cubans.

MILITARY POSTS AND BARRACKS AND QUARTERS.

The sum of \$1,170,000 was appropriated during the last fiscal year for the above-named purposes, which was duly apportioned for the construction, repair, and alteration of public buildings at the various military posts and for rent. Special construction and improvements have been ordered from the appropriations for military posts at Fort Ethan Allen, Vt.; post near Seattle, Wash.; Jefferson Barracks, Mo.; Fort Point, Tex.; Fort Harrison, Mont.; Plum Island, N. Y.; post near Spokane, Wash.; Willets Point, N. Y., etc.

CAMPS FOR THE TROOPS.

During the war camps were established for military purposes at Tampa, Fla.; Mobile, Ala.; Camp George H. Thomas, Ga.; Camp Alger, Va.; Camp Poland, Knoxville, Tenn.; Jacksonville, Fla.; Miami, Fla.; Fernandina, Fla.; Camp Wikoff, N. Y.; Camp Hamilton, near Lexington, Ky.; Camp George G. Meade, Pa.; Camp Wheeler, Huntsville, Ala., and Camp Shipp, Anniston, Ala. All necessary temporary storehouses, hospitals, and other buildings were erected or hired and tents floored. Water facilities were arranged for either by driven wells, pumping plants, or by connecting camps with city water mains. To insure a supply of good water many of the camps were furnished with a number of approved portable filters, and one with boilers for boiling water.

During the latter part of April, 1898, five buildings were rented at Key West, Fla., for a general hospital. An office and storeroom were also rented, and temporary buildings constructed for kitchen, dining room, closets, etc., and a water-supply system, including distilling plant, installed for the hospital and post at Key West Barracks, Fla., at an approximate cost of \$20,682.25.

Many of the buildings at Fort McPherson, Ga.; Fort Myer, Va.; and Fort Thomas Ky., were used as general hospitals.

On July 3, 1898, instructions were given for the erection of tents and temporary buildings on the Fort Monroe, Va., Reservation for a general hospital to accommodate 500 patients and 100 attendants. The work was completed July 23, 1898, at a cost, exclusive of tents, of \$5,016.12.

On July 20, 1898, the Secretary of War authorized the establishment, near Fort Monroe, Va., of a pavilion hospital of 1,000 beds. A tract of land on the line of an electric railway, about 2 miles from the post, was leased at \$500 per annum, and on this site the buildings and improvements are in course of completion, the cost to September 30, 1898, being reported as \$90,276.

The sum of \$20,000 was authorized for a distilling plant at the Philippine Islands, including machinery for taking water from a tower to a higher level and providing larger camps with water from one or more sources of supply.

GRAVES AT SANTIAGO.

In accordance with the orders of the President, the chief quartermaster at Santiago, Cuba, on August 10, 1898, was instructed by cablegram to take immediate steps to erect temporary markers and prevent effacement of any markers erected at soldiers' graves at Santiago. A capable and reliable employee of this department was sent to Santiago, Cuba, by this office, with directions to report to Maj. Gen. H. W. Lawton, commanding that department, for the specific duty of erecting suitable markers at the graves of our soldiers at Santiago and vicinity. He was especially instructed to ascertain the exact location of our dead, securing, if possible, the names, ranks, companies, regiments, and dates of death of all soldiers buried there, also names and dates of death of employees and other American citizens who had been interred there since the Army landed in Cuba, making a complete record thereof, and take prompt measures for the erection of wooden markers at said graves until permanent ones could be supplied. He was further directed to make such examination of this subject as to be able to report and identify the burial places of every United States soldier and American citizen buried at Santiago and vicinity, and at the same time prepare a complete record of every case, showing exact location of each burial site, in order that the identification of the place of burial of all our soldiers and citizens can hereafter be ascertained with accuracy. He reported his arrival at Santiago on August 31, 1898, and upon completion of this important work will submit full and detailed report to this office.

Under the act of Congress approved July 8, 1898, the sum of \$200,000 was appropriated to enable the Secretary of War, in his discretion, to cause to be transported

to their homes the remains of officers and soldiers who die at military camps, or who are killed in action, or who die in the field at places outside of the limits of the United States.

No definite plans have yet been formulated by the Department in regard to the removal of the remains to the United States, but the subject is under consideration.

NATIONAL CEMETERIES.

There are 83 national cemeteries and 75 superintendents. The interments in these cemeteries to June 30, 1898, were 337,296. During the fiscal year all the necessary improvements and repairs have been made to all these cemeteries and the grounds kept in good condition.

ORGANIZATION.

Congress, on July 7, 1898, passed an act "to increase the efficiency of the Quartermaster's Department of the Army," which authorized the Secretary of War to make such distribution of the duties and labors of the Quartermaster's Department, as well as the assignment of its officers to important and special lines of duty, as might be deemed for the best interests of the service.

Under the provisions of the above-mentioned law, this Department has been enabled to largely increase its efficiency by a proper distribution of the work, and a more advantageous assignment of its officers.

TAMPA DEPOT.

A résumé of the work done by the quartermaster's department at Tampa, in the short space of four months, is as follows:

Army corps equipped	2
Freight cars handled (loaded or unloaded).....	13, 239
Officers and men transported.....	66, 478
Horses and mules transported	15, 309
Horses and mules received	11, 389
Horses and mules issued	9, 919
Wagons "set up"	604
Teams "broken out" (six mules)	141
Teams "broken out" (four mules).....	520
Pack trains equipped	21
Wagons and ambulances repaired	699
Transports fitted out	33
Transports cleared	78

TAMPA, FLA., AND SANTIAGO.

Col. C. F. Humphrey (now brigadier-general, United States Volunteers), Chief Quartermaster, arrived at Tampa, Fla., May 1, 1898, and the following day, at the request of General Shafter, took charge of the quartermaster's department at that place, so far as pertained to the fitting out of the expedition to Cuba. The same day he was placed in charge of the quartermaster's department at Tampa by telegraphic order from the honorable the Secretary of War. He accompanied the expedition to Santiago and attended to the unloading of the transports at the latter place. His work at both these points was of the most important and laborious character, and was efficiently administered.

DEPOT AT PONCE, PORTO RICO.

Lieut. Col. J. W. Pullman, quartermaster, U. S. A., sailed from Tampa, Fla., on the steamer *Rita* on August 15, 1898, for Ponce, Porto Rico, with a full supply of quartermaster stores, employees, etc., for the purpose of establishing a quartermaster's depot at that place, from which to issue all necessary supplies required by the troops operating there. He arrived at Ponce on August 22, 1898, and established a temporary depot at that place.

DEPOT AT HONOLULU.

Lieut. Col. George Ruhlen, quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), is the officer of this department who has been assigned to duty as depot quartermaster at Honolulu, where he arrived on August 28, 1898, and established a quartermaster's depot there from which all the United States troops stationed at that point can be promptly supplied with all quartermaster supplies.

MANILA, PHILIPPINE ISLANDS.

Lieut. Col. J. W. Pope, chief quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.), is the chief quartermaster at this station.

Owing to the length of time required for mail communication no detailed report of operations of the Quartermaster's Department in the Philippine Islands has as yet been received.

OCCUPATION OF CUBA BY UNITED STATES FORCES.

Officers of this Department have been ordered to duty at Havana, Matanzas, Nuevitas, Gibara, Cienfuegos, and Manzanillo, Cuba, with a view to making every preparation possible for the United States troops previous to their arrival at the places named.

CONCLUSION.

In concluding this report I desire to state that this office, during the war, has constantly kept in view the fact that the all-important duty devolving upon this Department was to provide for and promptly furnish the Army with all needful quartermaster supplies. For months the most energetic efforts have been made to the accomplishment of this purpose. Practically everything needed for the largely increased Army had to be purchased or manufactured and then transported to the numerous camps.

I feel deeply indebted to the officers of this Department for their valuable assistance in the accomplishment of the heavy task placed upon this branch of the public service. They deserve the highest credit for service efficiently performed.

I also gladly bear testimony to the zeal, fidelity, and intelligence with which many of the volunteer officers of this Department have performed the important duties committed to them.

It is not only a matter of duty on my part, but also one of great pleasure, to here record my sincere appreciation of the able and efficient service of the officers associated with me in this office. They justly deserve the highest possible commendation for their intelligent and loyal discharge of the responsible and laborious duties imposed upon them. Day and night have they been at their posts of duty rendering invaluable assistance, and only with their constant and untiring helpfulness has this office been able to promptly dispose of the immense volume of work coming daily to this office for consideration and action.

EMPLOYEES.

I do not forget the clerks and other employees serving in this office and throughout the Department at large. Without their assistance the work of this Department could not have been accomplished during the war emergency. Many of the permanent and experienced employees rendered most invaluable and efficient service, some often working twelve and fifteen hours a day, including Sundays and holidays. In a number of cases, by reason of their efficiency and experience, employees at department headquarters were required to leave their homes and families to go to the field, and thereby were put to considerable expense without receiving additional compensation. These employees devoted all their energies to the interest of the public service. I strongly recommend that some action be taken by Congress to recompense all regular employees of this Department who performed this extraordinary service at a time when such service was of the greatest importance to the Government. A 20 per cent increase of their pay for one year would not be more than they justly deserve.

MEMORIAL BRIDGE.

I renew the recommendations of my predecessor that an appropriation be made by Congress for the construction of a bridge over the Potomac River between the Naval Observatory grounds and the Arlington Reservation, which will furnish a short and direct route to the cemetery and park, and afford rapid communication between the Capitol and the large military post of Fort Myer, Va. This is an important matter, and it is hoped it may receive the consideration of Congress at its coming session.

ESTIMATES.

The estimates for the ensuing fiscal year differ from the appropriations for the current fiscal year as follows:

	Increase.
Regular supplies.....	\$12,200,000
Incidental expenses.....	3,300,000
Horses for cavalry and artillery.....	715,000
Barracks and quarters.....	1,750,000
Army transportation.....	27,513,875
Clothing and equipage.....	13,769,431

Because of the fact that the estimate is made for 160,000 men instead of 25,000.

	Increase.
Construction and repair of hospitals.....	\$60,000
Quarters for hospital stewards.....	13,000

Because of increased accommodations required and urgent repairs shown to be necessary in the estimate submitted by the Surgeon-General of the Army.

	Increase.
Repairing roads to national cemeteries.....	\$7,000

Because of much-needed repairs which in the past it has been impossible to make because of insufficiency of appropriations provided.

	Increase
Military posts.....	\$380,000

Because of the necessity for the construction of barracks and quarters in connection with the modern seacoast armaments involving the establishment on the coast of new military posts, and the enlargement of others.

Respectfully,

M. I. LUDINGTON,
Quartermaster-General, U. S. A.

The SECRETARY OF WAR.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, November 25, 1898.

The amount of transportation that went with General Shafter's command, which embarked on June 14, from Tampa to Santiago, according to report of General Humphrey, is as follows:

Draft mules	946
Pack mules	390
Government horses	578
Private horses	381
Total animals	2,295
Army wagons	114
Escort wagons	81
Red Cross ambulances	7
Total vehicles	202

The amount of transportation sent to Santiago from June 14 to August 24, as far as can be shown from the records of this office, is as follows:

Draft mules	877
Pack mules	130
Total animals	1,007
Army wagons	71
Escort wagons	41
Ambulances	35
Signal Corps wagons	2
Field telegraph wagon	1
Wire wagons	2
Telephone wagon	1
Tool wagons	2
Total vehicles	155

M. I. LUDINGTON,
Quartermaster-General, U. S. A.

Statement of chartered vessels of the Quartermaster's Department.

ATLANTIC AND GULF COASTS.

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate charter per day.	Tonnage.
<i>Transports.</i>		1898.	1898.		
Comal	New York and Texas S. S. Co	Apr. 29	Oct. 25	a \$625.00 b 575.00	2,934
Alamo	do	Apr. 29	Sept. 23	a 600.00 b 550.00	
Rio Grande	do	May 10	Aug. 26	500.00	2,568
Leona	do	May 10	Aug. 29	500.00	2,129
San Marcos	do	May 10	Sept. 8	500.00	2,637
Ooncho	do	May 10	Sept. 23	550.00	2,794
Lampasas	do	June 13	Aug. 13	650.00	2,237
Nueces	do	June 13	Sept. 16	650.00	2,267
Vigilancia	New York and Cuba Mail S. S. Co.	May 10	Sept. 18	600.00	4,115
Seguranca	do	May 10	Sept. 30	600.00	4,115
Orizaba	do	May 10	Sept. 17	500.00	2,497
Yucatan	do	May 10	Sept. 30	500.00	3,325
Seneca	do	May 10	Sept. 29	450.00	2,739
Saratoga	do	May 10	Sept. 21	450.00	2,639
Santiago	do	May 10	Sept. 3	450.00	2,359
City of Washington	do	May 10	Sept. 15	450.00	2,648
Manteo	do	May 28	Oct. 7	200.00	543
Gussie	Southern Pacific Co	Apr. 30	Sept. 11	350.00	988
Whitney	do	Apr. 30	Sept. 2	350.00	1,337
Morgan	do	May 12	Aug. 31	400.00	984
Aranas	do	May 12	Sept. 3	400.00	1,156
Clinton	do	June 8	Sept. 11	400.00	1,187
Allegheny	Merchants and Miners' Transportation Co.	Apr. 29	Sept. 12	a 600.00 b 550.00	2,014
Berkshire	do	do	do	a 600.00 b 550.00	
D. H. Miller	do	do	Sept. 3	a 600.00 b 550.00	2,296
Florida	Plant Investment Co	May 2	Sept. 9	600.00	
Olivette	do	Apr. 3	do	a 500.00 b 450.00	1,611
La Grande Duchesse	do	July 5	Sept. 2	1,200.00	
Tarpon	do	July 10	Oct. 2	250.00	450
Catania	Tweedle Trading Co	June 13	Sept. 13	600.00	2,706
Cherokee	Wm. P. Clyde & Co.	May 11	Aug. 23	500.00	2,567
Iroquois	do	do	Aug. 18	600.00	2,944
Comanche	do	June 3	Sept. 2	640.00	2,292
Matteawan	Miami Steamship Co	May 11	Aug. 24	600.00	2,390
Miami	do	May 13	Aug. 24	550.00	2,050
Knickerbocker	Cromwell Steamship Co.	June 3	Sept. 21	400.00	1,642
Louisiana	do	do	Aug. 12	500.00	2,849
Hudson	do	June 9	Sept. 6	400.00	1,806
Breakwater	New Orleans Belize Royal Mail Steamship Co.	May 12	Sept. 10	340.00	500
Stillwater	do	May 16	Nov. 2	325.00	1,019
Wanderer	do	July 5	Sept. 10	220.00	631
Unionist	Henry Hanaw (Angier Line)	June 10	Sept. 23	a 375.00 b 325.00	2,156
Specialist	do	June 3	do	a 425.00 b 375.00	

a First thirty days.

b After 30 days.

Statement of chartered vessels of the Quartermaster's Department—Continued.

ATLANTIC AND GULF COASTS—Continued.

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate charter per day.	Tonnage.
<i>Transports—Continued.</i>		1898.	1898.		
Gate City.....	Ocean Steamship Co.....	June 6	Aug. 18	\$500.00	1,997
City of Macon.....	do.....	do...	Aug. 26	500.00	2,098
Arcadia.....	New York and Porto Rico Steamship Co.	June 15	Sept. 2	250.00	2,317
Uto.....	H. P. Kirkham.....	July 20	Sept. 14	165.00	899
Fanita (Secret Service).	James McKay.....	.....	Sept. 8	150.00	.....
<i>Signal Service.</i>					
Adria.....	Western Union Telegraph Co.....	Apr. 21	Aug. 15	200.00	519
<i>Water boats.</i>					
Anne Stevens.....	W. S. Vanaman.....	May 13	Nov. 1	50.00	a100,000
Barge S. O., No. 77....	Standard Oil Co.....	May 14	Aug. 7	100.00	a100,000
Maverick.....	do.....	May 16	Sept. 2	500.00	a440,000
Kanawha.....	John A. Donald.....	June 3	Oct. 3	175.00	a180,000
<i>Steam lighters.</i>					
Beale.....	Galveston S. S. & L. Co.....	May 24	.....	50.00	185
Laura.....	do.....	do...	Oct. 6	50.00	185
Cumberland.....	Cumberland Steamship Co.....	June 1	.....	50.00	119
<i>Tugs.</i>					
Gladisfen.....	William E. Myers.....	July 11	.....	90.00	110
Underwriter.....	La Branch Pilots' Association, New Orleans.	July 8	Oct. 2	160.00	171
Nimrod.....	H. T. Hartwell.....	June 25	July 15	80.00	110
Captain Sam.....	W. Chase Spotswood.....	June —	July 9	75.00	93
Triton.....	Morse & Co., New York.....	Aug. 6	Oct. 1	212.50	.....
<i>Lighters.</i>					
Ora.....	W. C. Taylor.....	June 25	July 2	10.00	60
S. S. Mantoe.....	New York and Cuba Mail Steamship Co.	Oct. 19	(b)	300.00	583
S. S. Bratten.....	W. D. Munson.....	Nov. 11	(b)	{ c 105.00 d 130.00 }	705
Tug Gladisfen.....	Wm. E. Myers.....	Nov. 13	(b)	120.00	110

The following were chartered for use at Montauk Point:

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate charter per day.	Tonnage.
<i>Steamers.</i>		1898.	1898.		
Shinnecock.....	Montauk Steamboat Co.....	Aug. 20	Sept. 22	\$1,000.00	1,205
Vigilant.....	John Delany.....	Aug. 11	Oct. 1	100.00	150
<i>Steam lighter.</i>					
Columbia.....	James P. McAllister.....	Aug. 15	Oct. 3	60.00	175
<i>Tugs.</i>					
James A. Lawrence....	Alfred Dutch.....	Aug. 10	Oct. 9	75.00	86
A. W. Booth.....	Michael Moran.....	Aug. 15	Sept. 24	75.00	118
Lewis Pulver.....	John Nichols.....	Aug. 11	Oct. 4	50.00	71

a Gallons.

b Chartered for Cuba.

c First 21 days.

d After 21 days.

Statement of chartered vessels of the Quartermaster's Department—Continued.

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate charter per day.	Tonnage.
<i>Barges.</i>		1898.	1898.		
Arthur		Aug. 13	Oct. 4	\$40.00	-----
Curry		do	do	40.00	-----
Newkirk		Sept. 2	Sept. 3	25.00	-----
Baxter		Sept. 3	Sept. 4	15.00	-----
Wm. H. Vanderbilt		Aug. 16	Oct. 7	40.00	-----

Statement of vessels chartered by Quartermaster's Department, Pacific coast.

Name of vessel.	By whom owned.	Chartered.	Charter canceled.	Rate of charter.	Tonnage.
		1898.	1898.		
Australia	Oceanic Steamship Co.	May 10	Aug. 29	a \$20,000	2,755
Zealandia	do	May 27	.....	a 20,000	2,480
Ohio	Empire Transportation Co.	do	.....	a 25,000	3,428
Indiana	do	June 8	.....	a 25,000	3,156
Pennsylvania	do	July 7	.....	a 25,000	3,106
City of Sydney	Pacific Mail Steamship Co.	May 10	Aug. 30	b 1,000	3,080
China	do	May 27	Sept. 22	b 1,500	5,080
City of Para.	do	June 11	.....	b 1,000	3,532
Colon	do	May 27	Sept. 7	b 750	2,700
Newport	do	June 20	.....	b 1,000	3,000
Peru	do	June 26	Nov. 2	b 1,000	3,500
City of Rio de Janeiro	do	July 7	Oct. 22	b 1,000	3,543
Morgan City	Johnson-Looke Mercantile Co.	June 7	Nov. 3	b 900	2,300
Senator	Pacific Coast Steamship Co.	June 8	.....	b 1,000	2,400
City of Puebla	do	June 23	.....	b 900	2,022
Valencia	Pacific Steam Whaling Co.	June 19	.....	b 650	1,196
St. Paul	Alaska Commercial Co.	July 19	.....	b 1,000	2,440
Tacoma (sailer)	Alaska Packers' Association	July 11	.....	b 300	1,738

Statement of vessels purchased by the Quartermaster's Department.

Name.	Tonnage.	From whom purchased.	Date of purchase.	Amount paid for vessel.
			1898.	
Panama, No. 1	2,085	Captured	June 21	\$41,000
Port Victor, No. 2	2,702	Irwin, McBride, Catherwood & Co.	July 8	175,000
Rita, No. 3	2,194	Captured	July 8	125,000
Mohawk, No. 20	5,656	Bernard N. Baker	July 14	600,000
Mobile, No. 21	5,780	do	do	600,000
Massachusetts, No. 22	5,673	do	do	600,000
Manitoba, No. 23	5,673	do	July 20	600,000
Minnewaska, No. 24	5,796	do	July 26	600,000
Mississippi, No. 25	3,732	do	July 14	350,000
Michigan, No. 26	3,722	do	do	350,000
Roumanian, No. 27	4,120	Austin, Baldwin & Co.	July 12	240,000
Obdam, No. 30	3,656	Samuel D. Coykendall	July 1	250,000
Berlin, No. 31	5,641	International Navigation Co.	July 13	400,000
Chester, No. 32	4,770	do	July 27	200,000

a Per month.

b Per day.

Statement of vessels purchased by the Quartermaster's Department—Continued.

Name.	Ton- nage.	From whom purchased.	Date of purchase.	Amount paid for vessel.
<i>Hospital ships.</i>				
Relief.....	3,085	Maine Steamship Co.....	1898. May 20	\$450,000
Bay State.....	777	State of Massachusetts.....	Nov. 15	100,000
<i>Tugs.</i>				
Britannia.....	135	Baker-Whitely Coal Co.....	July 14	40,000
Sarah.....		Long Island Machine and Marine Construc- tion Co.	...do...	6,300
Gypsum King, ocean...	581	J. B. King Transportation Co.....	July 25	150,000
Major McKinley.....	60	Frederick A. Verdon.....	Nov. 7	13,000
Olympic.....		...do.....	Nov. 19	12,000
Harry.....		G. H. Hill.....	Nov. 26	6,000
J. C. Watson.....		J. D. Dailey.....	Nov. 28	14,000
<i>Steam lighters.</i>				
Eugene Graselli.....		Gustav A. Schwas.....	Nov. 25	39,500
Adonis.....		W. C. Cahill.....	Nov. 26	26,000
Edward L. Ward.....		E. L. Ward.....	Nov. 7	26,000
<i>Lighters.</i>				
L. E. Rinehardt.....		Bernard Campbell.....	July 13	5,500
Touart.....	200	W. C. Taylor.....	June 25	2,000
Ben.....	180	Mobile Coal Co.....	June 27	1,500
<i>Barges.</i>				
E. L. Bartley.....		William S. Bartley.....	June 13	5,000
Willie.....	231	...do.....	...do...	5,000
Annie.....	122	Old Dominion Steamship Co.....	July 14	10,000
Mocha.....	338	...do.....	...do...	10,000
Helen.....	122	...do.....	...do...	10,000
<i>Steamships.</i>				
Scandia (Pacific coast) .	4,263	Hamburg-American Line.....	July 5	200,000
Arizona (Pacific coast) .	5,000	Northern Pacific Rwy. Co.....	July 16	600,000

When war was declared the Department was amply provided with all necessary clothing and equipage supplies for the then existing small army of 25,000 men, but had no equipments for the volunteer soldiers, and no transportation for so large an army, such as horses, mules, wagons, ambulances, harness, etc.; neither had it a single transport ship.

The Department has purchased 36,800 horses and mules, 5,179 wagons, 559 ambulances, 28,012 sets of harness, and 83,078 tons of coal for vessels—chartered 77 vessels for the Atlantic, Gulf, and Pacific coasts, and purchased 16 steamships, which are now the property of the United States, in excellent condition. Mr. B. N. Baker, of Baltimore, Md., generously tendered the use of the steamship *Missouri* to the United States, with the services of her captain and crew. She has been fitted out as a hospital ship, and is a most excellent and valuable one. The hospital ship *Relief* was also of great service.

The small hospital ship *Bay State* has recently been purchased from the Massachusetts Relief Association. She cost that association \$175,000. The amount paid by the Government was \$100,000. She is fitted out in first-class order and can be used in the shallow waters around the islands. The vessel ran between Porto Rico, Santiago, and Boston during the war, conveying the sick soldiers of Massachusetts regiments.

The cost of transporting the Spanish prisoners to Spain amounted to \$513,860.

A weekly steamship line has been established by the Department, sailing every Wednesday from New York for Ponce, Santiago, and return.

The graves of our soldiers in Santiago and vicinity and in Porto Rico and the Philippines are being carefully marked and a complete record is being made. So soon as plans now under consideration are completed, the remains of these officers and soldiers will be brought to the United States and transported to their former homes under the act of Congress approved July 8, 1898, which appropriated \$200,000 for the purpose.

MILITARY POSTS.

The new site tendered by the citizens of Bismarck, N. Dak., for the proposed military post at or near that city has been accepted, and the deeds and title papers for the lands have been transmitted to the Attorney-General, with request for his opinion as to the sufficiency of the papers to vest in the United States a valid title to the premises in question. If in his opinion the title is good, action will be taken at once to begin the construction of the post under the appropriation made therefor by the sundry civil appropriation act approved July 1, 1898 (30 Stats., 629).

Upon the recommendation of this Department certain public lands, situated near Sheridan, Sheridan County, Wyo., have been reserved by Executive order for the purpose of a military reservation, it being the intention of the Department to ask an appropriation by Congress to establish there a military post.

In March, 1898, an order was issued for the abandonment of Whipple Barracks, Ariz., but upon further consideration it was decided to withhold the order, since which time a detachment of troops has been kept at the post guarding public property. The necessity for the continuance of Whipple Barracks as a military post is, in the opinion of the Department, imperative, and it is recommended that an appropriation of \$75,000 be made for the reconstruction of the buildings and other appurtenances at the post, which are very much needed.

SUBSISTENCE DEPARTMENT.

WAR DEPARTMENT,
OFFICE COMMISSARY-GENERAL OF SUBSISTENCE,*Washington, October 17, 1898.*

SIR: I have the honor to submit the following summary of my annual report:

The settled practice of the Department has heretofore been to limit the scope of its annual reports to the transactions of the fiscal years ending on June 30; but owing to the importance of transactions which were begun prior to that date in 1898, and which have been continued in unbroken sequence to the present date, the limit of June 30 has in some instances been exceeded in the present report, in order that a connected view of a portion of the incidents of the war with Spain may be given.

The personnel of the Department on April 1, 1898, consisted of 22 officers. Appropriation for the subsistence of the Regular Army of 25,000 men had been made for the fiscal year ending June 30, 1898, amounting to \$1,650,000. Of this sum \$314,314 remained undrawn from the Treasury on April 1. The acts passed by Congress on the breaking out of hostilities with Spain placed, successively, the sums of \$2,739,643.50, \$5,000,000, and \$15,367,112.28, or a total of \$23,106,755.78, at the disposal of the Department.

In anticipation of the breaking out of the war, all chief and purchasing commissaries had been advised to make preparation for meeting the demands that would be made upon them as soon as war was declared. Upon the calling out of volunteers and the stationing of troops upon the southern coast, officers of the regular establishment of the Subsistence Department were sent to locate subsistence depots of supply near each considerable body of troops, from which all food of the soldiers was drawn. Upon the establishment of great camps of concentration the same system of locating subsistence depots in close relation to them was followed. By this system the food supply of the men was always accessible to those officers of the combatant forces whose special duty it was to draw and distribute the allowances due to the men.

The acts of April 22, 1898, and July 7, 1898, for temporarily increasing the military establishment, and for increasing the efficiency of the Subsistence Department, added about 120 commissaries of subsistence of volunteers to the Department. As fast as these officers accepted their commissions and qualified by filing their official bonds, they were assigned to duty.

The first objective point of the war was the invasion of Cuba. An army of 16,000 men was dispatched from Tampa, Fla., on June 14, 1898 (within fifty-six days after war had been declared), and subsistence supplies for the entire force for a period of one hundred and twenty days accompanied the expedition. Eight days later reinforcements to the number of 6,400 men were sent, and they were followed immediately by subsistence supplies for the reinforcements to last a period of seventy-six days. Before the end of the month a large cargo of provisions was sent to Cuba with the provisional brigade of the Second Army Corps. These shipments were followed in July, 1898, by other shipments of food supplies, including refrigerated fresh beef sufficient for the supply of the whole command. The supplies of subsistence stores shipped to Cuba were at all times ample for all purposes—our army, Spanish prisoners, and starving Cubans. The returns showing the issues made to the army, the Cuban army, the destitute and prisoners of war in Cuba have not yet been received.

In order to enable surgeons in charge of hospitals to procure needful food for the sick under their charge, General Order No. 116 was issued August 10, 1898, which authorized them to expend from the appropriation, "Subsistence of the Army," the sum of 60 cents per man per day for the period each man was undergoing treatment,

and ample provision was made for furloughing convalescents and paying them commutations of rations while traveling to and from their homes.

The provisioning of the troops ordered to Montauk Point was accomplished without difficulty outside of the confusion incident to the occupation of a large camp by a large body of men within a short period of time. There appearing to be a necessity for supplying a portion of the troops assembled thereat, who were not in hospital or who were recuperating after discharge from hospital, with varieties of food differing from the articles of the ration, the Secretary of War ordered the purchase and distribution of large quantities of food of this character, the purchases being made from the appropriation for "Subsistence of the Army."

Rations were sent with the expedition to Porto Rico in quantities to last the command for a period of one hundred days; to the Hawaiian Islands to last for a period of ninety days, and to the Philippine Islands to last for a period of from four to six months.

Field bake ovens and coffee roasters were furnished to troops in the field by the Subsistence Department, and the permanent transfer to the Subsistence Department of the duty of furnishing them is recommended.

Regimental commissaries should be authorized by law, who should be charged with the receipt and distribution of the food supplies of the regiment.

The experience obtained in the recent war with Spain has demonstrated the necessity of having a larger number of commissary-sergeants in service than are now allowed. They were in demand from all quarters, and their services were invaluable in assisting officers in receiving, caring for, issuing, and accounting for subsistence stores. There should be a commissary-sergeant for each regiment in service, in addition to those now authorized for the various garrisoned posts and places of deposit of subsistence supplies, and legislation authorizing their appointment from the noncommissioned officers of the Regular Army is earnestly recommended.

The system of keeping records prescribed by War Department circular of May 15, 1894, failed to meet expectations during a state of war, and had to be partially abandoned in favor of an improvised method. Great confusion and embarrassment resulted, and the experience is not thought to be limited to the Commissary-General's Bureau alone.

The increase of the number of higher grade clerkships in the Commissary-General's Bureau is recommended, in view of the increase of employees necessitated by the war and the probable continuance of the Volunteer Army in service for some time to come.

As much clerical work has been done beyond office hours, extra compensation should be paid for the extra work, and it is respectfully recommended that the Secretary of War will give the matter his favorable consideration.

Very respectfully,

CHAS. P. EAGAN,
Commissary-General of Subsistence.

The SECRETARY OF WAR.

Amount of articles of the ration issued at Santiago up to October 1, 1898.

	Pounds.	Rations.	Days.
Bacon	1, 851, 671	2, 468, 084	154
Roast beef	491, 101	982, 202	61
Corned beef	32, 500	65, 000	5
Fresh beef	955, 000	764, 000	47
Flour	1, 775, 245	1, 577, 965	98
Hard bread	1, 828, 456	1, 828, 456	114
Baking powder	61, 868	1, 546, 700	96
Beans	817, 908	2, 119, 386	132

Amount of articles of the ration issued at Santiago up to October 1, 1898—Continued.

	Pounds.	Rations.	Days.
Potatoes	1, 034, 185	1, 034, 185	64
Onions.....	219, 864	219, 864	13
Coffee, green.....	104, 965	1, 049, 650	65
Tomatoes, 3 pounds.....	631, 620	1, 421, 145	88
Coffee, roasted.....	217, 430	2, 717, 875	169
Sugar.....	383, 572	2, 557, 146	159

Other components of the ration issued proportionately. Issue based on an estimate of 16,000 men.

CHAS. P. EAGAN,
Commissary-General of Subsistence.

The summary of the Commissary-General of Subsistence shows the operations of his department, which was enabled to furnish an ample supply of food for the Army, and also much for the Cuban army and the destitute and prisoners of war in Cuba.

The order issued August 10, 1898, authorized surgeons in charge of hospitals to expend from the appropriation for the subsistence of the Army the sum of 60 cents per man per day for the period each man was undergoing treatment, and ample provision was made for convalescents on furlough.

A personal visit to Montauk Point convinced me that there was need of an issue to the troops just returned from Cuba (many of whom were suffering from the effects of the climate there) of food supplies different from those composing the ration, and accordingly large quantities of suitable food were ordered purchased and distributed to the hospitals, as also to the troops in camp.

Field bake ovens and coffee roasters should be furnished to the troops by the Subsistence Department, as stated by the Commissary-General. These appliances are now provided for in the act making appropriation for the support of the Army, under the heading "Regular supplies, Quartermaster's Department."

The experience of our late war has demonstrated the need of a regimental commissary, and also for a commissary-sergeant for each regiment in service. The recommendation of the Commissary-General in this respect is therefore concurred in.

MEDICAL DEPARTMENT.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, D. C., November 10, 1898.

SIR: I have the honor to submit the following as a summary of my report for the year ended June 30, 1898:

THE WORK OF THE MEDICAL DEPARTMENT DURING THE SPANISH WAR.

Medical officers.—The number of medical officers, 192, allowed by law to the Army, is inadequate in time of peace. The insufficiency in time of war was met by the assignment of over 650 contract surgeons under the provision of the act approved

May 12, 1898. All volunteer regiments had 3 medical officers appointed by the governors of States. Volunteer surgeons, to fill the staff positions authorized by the act approved April 22, 1898, were appointed by the President: Eight corps surgeons with the rank of lieutenant-colonel, and 110 division and brigade surgeons with the rank of major; 5 of the former and 36 of the latter positions were filled by the appointment of officers of the Army Medical Department. The President also appointed three medical officers for each of the regiments of United States volunteer infantry, cavalry, and engineers. The very small proportion of medical officers having experience of a military character impaired the efficiency of the Department at the outset, but many of the staff surgeons from civil life showed great aptitude for the service and speedily became of value as administrative and sanitary officers.

Hospital Corps.—No provision was made for hospital corps men for the volunteer troops except that which empowered the Secretary of War (act March 1, 1897) to enlist as many privates of the Hospital Corps as the service may require. To provide this corps with the necessary number of men recruiting officers were urged to secure suitable men and medical officers to effect the transfer of men from the line of the Army. General Orders, No. 58, Headquarters of the Army, Adjutant-General's Office, May 31, 1898, authorized the transfer of men from the line of the volunteers to the Hospital Corps of the Regular Army upon the recommendation of the Chief Surgeon and suspended the provisions of Army Regulations governing the Hospital Corps so far as they were inapplicable in time of war and with troops in the field. Commanders of corps and of independent divisions and brigades were charged with the full control of the transfer from the line, the enlistment and discharge of members of the Hospital Corps, the detail of acting hospital stewards, and the appointment of stewards, the last limited by subsequent orders to 10 stewards for an army corps in addition to those authorized for the volunteer regiments.

The number of men enlisted and transferred during the war was approximately 6,000.

Contract nurses.—The want of a sufficient body of trained hospital corps men necessitated the detail of enlisted men from the regiments for hospital duty in several of the camps and the employment of trained nurses at the general hospitals. Foreseeing the necessity for a large force of the latter, I applied to Congress April 28, 1898, for authority to employ by contract as many nurses as might be required during the war. This was promptly granted. Over 1,700 female nurses have been employed, at first at the general hospitals and later at the field division hospitals when it became evident that the field service purposes for which the latter had been organized would have to give place to the imperative need of caring for the many sick men coming from the regimental camps.

Medical and hospital supplies.—Immediately upon the declaration of war, April 21, steps were taken to obtain medical supplies for the new Volunteer Army. Orders were given, and the manufacture expedited with the utmost dispatch. On May 3, foreseeing that it would be impossible to have ready for issue to the volunteer regiments, as soon as they were mustered in, the necessary articles of field equipment, I telegraphed the governors of the several States for authority to use the medical equipment of the National Guard in the service of the State until our Army medical supplies were ready for issue. Most of the governors, who had field equipment, responded promptly and satisfactorily, but unfortunately many of the State medical departments had no such equipment. Meanwhile the officers in charge of medical supply depots were directed to make arrangements so that supplies could be immediately obtained for 100,000 men for six months.

A field supply table was prepared and approved by the Secretary of War May 9, 1898. It was intended to provide for the needs of commands in active service where only a limited supply of articles could be carried owing to the necessity of restricting transportation. But as soon as it was evident that the troops were likely to be

etained in camps of instruction, notification was given that articles on the regular supply table could also be obtained.

To provide, temporarily, for volunteer regiments, supplies of medicines, instruments, hospital stores, stationery, and miscellaneous articles, according to a prescribed list, and packed in convenient boxes, were prepared at the supply depots. An important article to be provided was the first-aid packet, containing antiseptic dressings for immediate use in emergencies and intended to be carried by each individual soldier. These were promptly and liberally supplied. Whenever notice was received from the Adjutant-General's Office that commands were to be moved or camps formed, I endeavored to anticipate the wants of the troops by telegraphing to the officer in charge of the nearest supply depot to forward supplies for the stated number of men according to the field supply table.

Requests from medical officers for supplies and orders based thereon transmitted to the supply depots were largely by telegraph, and orders were given that when the supplies were needed promptly they should be forwarded by express to their destination. When a medical officer desired to purchase medical and other supplies for use in emergencies authority to do so was always granted.

The medical supply depot in New York supplied the posts in New England, the Middle States, and along the Atlantic coast, including Florida, and the troops that have been sent to and are now serving in Cuba and Porto Rico. The depot at St. Louis, Mo., supplied the States of the Mississippi Valley and the region east of the Rocky Mountains, including Texas, the large camp at Chickamauga, and the camps formed at Knoxville, Lexington, Anniston, Huntsville, etc. To provide for the large aggregation of troops at Chickamauga, Ga., a subdepot, drawing its supplies from St. Louis, was organized. The officers in charge of the depots at New York and St. Louis were directed, July 8, to keep in stock 1,000 iron beds or cots with a full supply of bedding ready for immediate use. The distance of San Francisco from the center of the Government was so considerable that the officer in charge of that depot was necessarily given large discretion in the purchase of supplies and the expenditure of funds.

Railroad ambulance train.—On June 16 a railroad ambulance train, consisting of 10 tourist sleepers, a dining car, a private car, and a combination car, was equipped for service and placed under the command of Maj. Charles Richard, surgeon, U. S. A. One assistant surgeon, 2 stewards, 20 privates of the Hospital Corps, and 3 civilian employees were assigned to him for service. The train was amply provided with all the medicines, hospital stores, and comforts required for the patients to be transported.

HOSPITAL SHIPS.

The hospital ship Relief.—On April 15, 1898, I applied for a ship to be used as a hospital ship. On May 18, by direction of the President, the *John Engle* was purchased, and the Quartermaster's Department took charge of her to prepare her for the special service required. Maj. George H. Torney, surgeon, U. S. A., was placed in command of the ship. Specific instructions were sent to him to provide every thing needful so that there might be no delay attributable to the Medical Department, and these instructions were complied with to the letter. The *Relief*, however, was unable to sail from New York until July 2. She arrived at Siboney on the 7th, where she received many of the wounded from the attack on Santiago.

The hospital ship Missouri.—On July 1, 1898, Mr. B. N. Baker, of Baltimore, Md., tendered the steamship *Missouri*, with her captain and crew, to the Government as a hospital ship. Ten days or two weeks was the period estimated as needful to permit of making the necessary alterations and providing the vessel with a steam laundry, steam sterilizing apparatus, and ice and carbonating plants, but it was not until August 23 that the ship was reported ready to sail, and even then a good deal of work had to be done on board during a stormy passage to Santiago.

The hospital ship Olivette.—This vessel was a steamship which had been doing service as a water boat for the fleet of transports when Lieutenant-Colonel Pope, chief surgeon of the Fifth Army Corps, selected her for use as a hospital ship during the voyage from Tampa to Santiago. The equipment of one of the field division hospitals of the corps was used in outfitting her. The *Olivette* answered her extemporized purpose excellently.

The health of the troops.—In my opinion the reduction of the age limit from 21 to 18 years and the haste with which the volunteer regiments were organized and mustered into the service were responsible for much of the sickness which was reported in the early days of their camp life. All military experience shows that young men under 21 years break down readily under the strain of war service; and every regiment had many of these youths in its ranks. Medical examiners were appointed to testify to the physical qualifications of each man before acceptance, but, notwithstanding this, which at the time was characterized in the press as a very rigorous procedure, so many men were afterwards found on the sick lists of the camps unfit for service, from causes existing prior to enlistment, that special arrangements had to be made for their discharge.

Soon after the newly raised levies were aggregated in large camps sickness began to increase progressively from causes that were so general in their operation that scarcely a regiment escaped from their harmful influence. These causes may largely be referred to ignorance on the part of officers of the principles of camp sanitation and of their duties and responsibilities as regards the welfare of the enlisted men in their commands.

Medical officers, as a rule, were also without experience in the sanitation of camps and the prevention of disease among troops. The few who knew what should be done were insufficient to control the sanitary situation in the large aggregations of men hastily gathered together.

Officers and men in these camps were rife for war, and drill, parades, practice marches, and military camp duties occupied the whole of their time and energies. Considerations of domestic economy and sanitation in the companies and regiments were not given proper attention and men who were being taught to meet the enemy in battle succumbed to the hardships and insanitary conditions of life in their camps of instruction.

The sites of certain of the camps have been instanced in the newspapers as the cause of the sickness which was developed in them; but a review of the whole situation shows that it was not the site, but the manner of its occupation which must be held responsible for the general spread of disease among the troops. On April 25, 1898, foreseeing the likelihood of insanitary conditions in the camps of our newly raised troops, and with the view of preventing them, I issued Circular No. 1 from this office, impressing upon medical officers their responsibility in sanitary matters, and the necessity for a strict sanitary police, particularly in the care of the sinks and in the preservation of the camp area from contamination. But the density of the military population on the area of these contracted camps prevented the possibility of a good sanitary condition. Camps of this character may be occupied for a week or two at a time without serious results, as in the case of national guardmen out for ten days' field practice during the summer, but their continued occupation will inevitably result in the breaking down of the command by diarrhea, dysentery, and typhoid fever.

Practically nothing was done to make the men comfortable or to remedy the insanitary conditions until these were brought to the attention of the Secretary of War by inspectors sent out by special orders from the War Department. Then the camps held for so long were abandoned, but not before the manifestations of typhoid infection were rife in them. New sites were carefully selected, regimental camps were expanded, company tentage increased, and board flooring provided. Then for the first time the troops went into camps suitable for continued occupation.

One prominent cause of the increase of sickness in the early camps has been commented upon by only a few of our medical officers. These cite the prevalence of drunkenness and of venereal diseases due to the facilities and temptations afforded by the proximity of cities to the larger camps. They hold that if the systems of the men had not been weakened by dissipation they would not have succumbed so readily to the other influences which affected them.

Malarial fevers added to the sick lists of camps in Florida and of Southern regiments in the camps in Georgia and Virginia.

It was, however, typhoid fever which broke down the strength of the commands generally, the outbreak becoming distinctly manifest in July. Sporadic cases appeared in most of the regiments in May and June, these cases having been brought in many instances from the State camps. In fact, some regiments, as the Fifteenth Minnesota, suffered more from this disease at their State rendezvous than any of the regiments in the large Federal camps. A few of the regimental commands in the latter may be said to have escaped visitation. The sanitary conditions affecting the commands in the various camps have been studied in connection with the prevalence of typhoid fever among the men by a board of medical officers consisting of Majors Reed, Vaughan, and Shakespeare, but the results of the investigations of this board have not as yet been reported in full. It appears to me, however, from a general review of the sanitary reports already filed, that the prevalence of the disease was proportioned to the insanitary camp conditions which I have referred to. My circular No. 1, already cited, was intended to bring the danger from this fever to the notice of medical officers, with a view of obviating it. The probability of its communication to soldiers in camp through the agency of flies was pointed out as a reason for insisting on a sanitary police of the strictest character.

It is well known to the medical profession that this fever is propagated by a contaminated water supply, and it is now recognized that the great prevalence of this disease in an aggravated form in the camps of the civil war was due to the use of surface and shallow well waters infected by typhoid excreta. To prevent transmission by the water supply I recommended the use of boiled and filtered water when a pure spring supply could not be obtained, and to enable an efficient filtration of suspected waters to be made field filters of approved construction were issued on my recommendation by the Quartermaster's Department.

The care of the sick and wounded.—As soon as the regiments were organized into brigades and divisions preparatory to active service, it became the duty of each chief surgeon of an army corps to see that the medical department of his command was organized to meet the casualties of battle. The object of the concentration of the troops was to accustom the regiments to operations in which they constituted the units of a higher organization. The experience of the civil war demonstrated that for efficient service in an active campaign the medical department also required a higher organization. Circular No. 3, from this office, dated May 18, 1868, in specifying the duties of the various medical officers in an army corps indicated the character of the organization to be adopted. The seriously sick were to be treated in division field hospitals (unless their transfer to a general hospital was advisable) under the care of the most experienced physicians and able surgeons on duty with each division. Medical officers left on duty with their regiments were to exercise sanitary supervision over the well men and to determine whether a soldier reporting himself sick should be sent to hospital or remain as a trivial case under treatment in quarters. This consolidation of the medical force by divisions, implying as it did the breaking up of the regimental hospitals, met with a strong opposition from regimental medical officers, particularly from those who were not detailed for special service at the division hospitals. Regimental commanders also were in many instances opposed to it, forgetful that the object of the medical department, as of the line, was to get into training for field service. Similar objections were raised in 1862 and 1863, to the disestablishment of the regimental

hospitals, but the civil war lasted long enough to demonstrate the superiority of the divisional system.

The Fifth Army Corps.—Long before this corps embarked for Cuba its field hospitals were in condition for efficient service. Subsequent events, however, rendered valueless these preparations of the Medical Department. When the command embarked on the transport vessels, the baggage wagons and mules were left behind. The ambulance trains of all the divisions, with a large part of the outfit of each of the hospitals, were also left behind. Three ambulance wagons were taken apart and stored on one of the vessels. These did excellent service at San Juan and El Caney. Ten of the ambulances of the Third or reserve divisional hospital were subsequently shipped to Cuba, where they arrived July 2, and were of value in moving the sick and wounded to the hospital at Siboney and to the hospital ships and transports.

Of the property and supplies carried to Cuba, a portion was not available for service at the time it was most needed, to wit, on July 1, 2, and 3, when the wounded from El Caney and San Juan were coming from the front for care and treatment. This was because, in general, no opportunity was afforded to land the medical property. Earnest efforts were made by medical officers to have supplies at the front with the troops. Some having succeeded in getting their medicine chests and other articles of medical property ashore, had these carried forward on litters by hospital-corps men to the camps near Sevilla, while others turned their private mounts into pack horses for this purpose. During and after the battles at El Caney and San Juan there was an insufficiency of tents, cots, bedding, and medicines due to the causes stated, but all the hospitals were well equipped for surgical work.

After the capitulation of Santiago the troops at the front broke down rapidly under the fatigues they had undergone and the malarial influences to which they were exposed; but by this time an ample supply of tents, furniture, bedding, clothing, and medical stores had reached Siboney, together with a corps of trained nurses and a force of surgeons—those sent to duty at the yellow fever hospital being immune to that disease. Meanwhile, to relieve the pressure on the field hospitals, such convalescents and sick as could bear the journey home were sent to the United States on transport vessels. This was an emergency measure to relieve the hospitals at Siboney and permit of the transfer to them of the men who were sick in regimental camps.

The transfer of troops from Santiago to Montauk Point, New York, was also an emergency measure, and the great responsibility of excluding yellow fever infection from every transport rested on the medical officers who had charge of the embarkation. Had they failed in this duty the effect would have been disastrous during the voyage to the men confined on shipboard, and the risk of importing the disease into this country would have been greatly increased.

In view of the necessity for the return of the troops of the Fifth Army Corps from Santiago, Cuba, preparations were made for encamping them at Montauk Point, Long Island. These included the establishment of temporary tent hospitals, not only for the treatment of the large number of sick brought by each command from Cuba, but for the isolation and treatment of those from transports lying under the suspicion of yellow fever infection.

The difficulties in the way of administering the affairs of the detention hospital were very great, owing to the rapidity with which the transports followed each other in their arrival. As many as four reached the Point on some days from August 13 to 31, most of them bringing sick requiring detention for medical observation. But the sick men were as well cared for and as comfortable in their cots here as afterwards when transferred to the general hospital at Montauk Point. There was an excellent steam disinfecting plant on the grounds with a formaldehyde chamber attached. The laundry work was done at a steam laundry near the hospital.

The temporary hospital, which was locally known as the General Hospital, Montauk Point, consisted of tent pavilions containing 1,600 cots. Its personnel

consisted of 40 medical men, 8 stewards, 10 acting stewards, 130 privates of the Hospital Corps, 15 cooks, and 50 male nurses, and an average of about 200 female nurses, one-half of whom were Sisters of Charity. Supplies of all kinds were amply provided.

It is needless to refer at this time to the complaints of starvation which appeared almost daily in the newspapers during the occupation of Camp Wikoff, for it is now generally understood that the weakness, prostration, anæmia, and emaciation of so many of the troops were the results of malarial, typhoid, and yellow fever, from which the army suffered as a consequence of its exposure to the climatic influences and local infections of Santiago and its neighborhood pending and subsequent to the surrender of the city.

Troops in the home camps.—The method of hospital organization in these camps was practically the same, and there was much similarity in the conditions affecting them and correspondingly in their history. Regiments reported provided in but few instances with the material and supplies for their medical care; but they brought sick men with them, and these required immediate care. Provision had to be made for division hospitals in view of future field service and for regimental hospitals in view of the immediate necessity. The difficulties in the way of the contemporaneous accomplishment of these two objects were great, and they were greatly augmented by the inexperience of a majority of the regimental medical officers and of many of the chief surgeons, which prevented them from seeing beyond the immediate necessity. The sick had to be cared for, and to this end medicines and other things had to be procured. Relief societies offered assistance and this was eagerly accepted by many of these medical officers, not alone for delicacies or luxuries not otherwise provided for, but for "supply table" articles which could have been had from the medical purveyors in their camps or by telegraphic requisition on the Surgeon-General. It was easier to accept what was so freely offered than to learn how to obtain the articles from the proper source. To explain their prompt acceptance of this assistance these officers referred to the red tape of the War Department methods, and the insinuation that the said methods were beyond the comprehension of the ordinary intellect was accepted by the sensational press as an explanation in full.

Meanwhile chief surgeons of corps and divisions began the organization and equipment of their field division hospitals and ambulance companies, but they were met at the outset by the apparent impossibility of securing men for service as cooks, nurses, litter bearers, ambulance drivers, teamsters, etc. The hospital corps of the Regular Army could not supply these men, because recruiting for this corps progressed slowly. The popular tendency to volunteer led men away from the regular recruiting offices. When transfers from the volunteer regiments to the Regular Hospital Corps were authorized, the men did not care to leave their local connections for service in the Army at large as regular soldiers. The transfers so much desired by the Medical Department to enable it to complete its organization were not regarded favorably by line officers, for although every line officer will probably acknowledge, as a general principle, that only the most intelligent and capable men should be employed to care for the sick and wounded, he is not likely to act on this general principle when it is a question of withdrawing for such service the most intelligent and capable men of his own company or regiment.

The division hospitals of the army corps were usually established in the immediate neighborhood of the regimental camps of the divisions. The pavilions were arranged in various ways, according to the configuration of the area available as a site, but in general there was a tendency to crowd the area. Surgeons in charge recognized that a tent should not be occupied by more than six patients, but sometimes this number was exceeded temporarily while waiting an increase of tentage. As a rule, the hospitals were kept in campaigning condition—that is, the tents were neither framed nor floored—until the increased prevalence of typhoid fever attracted attention to their crowded condition, when the object of their existence became

suddenly changed from a school for field service to a hospital for the treatment of a local outbreak of disease.

Special-diet kitchens, under the management of capable individuals, were opened at most of the hospitals. Money for this purpose was sent to them by me from funds contributed and placed at my disposal. Money was also sent directly by individuals and by representatives of aid societies, and the Red Cross committees supplied quantities of ice and milk, chicken, eggs, lemons, etc. Pajamas, nightshirts, and other articles of hospital clothing were also provided by the Red Cross and other aid societies. Subsequently the order authorizing the commutation of the sick soldier's ration at 60 cents rendered these hospitals wholly independent of outside assistance.

About July 20 the troops for the invasion of Porto Rico embarked and sailed. The field-hospital accommodation with this expeditionary force was ample and the supplies abundant.

Troops on the Pacific coast.—The troops on the Pacific coast were concentrated mostly at San Francisco, Cal., from which port 18,000 men were dispatched to the Philippine Islands. They were carried on twenty transport steamers, the first expedition sailing on May 25. Each steamship before being accepted by the Government was inspected by a board of medical officers, and in each instance the vessel was thoroughly disinfected before the troops went on board.

The precautions taken to secure a good sanitary condition of the vessels prior to embarkation and the sanitary supervision exercised over the men during their long voyage must be credited with the excellent condition in which the troops arrived at Manila.

DIVISION HOSPITALS.

The want of hospital corps men was the main cause of the failure of chief surgeons to establish their division hospitals promptly. Instead of organizing for field service, their time was occupied and their energies spent in endeavoring to procure the necessary men by enlistment or transfer.

After a time, when sickness invaded the camps and the division hospitals became filled, operations for field service had to give place to the immediate necessity of caring for the sick. The division hospitals became expanded, as at Siboney and Tampa, into base hospitals, with increased needs and increased responsibilities. To these I sent with the utmost dispatch physicians and surgeons under contract, to relieve the strain on the medical officers attached to the troops and trained nurses to relieve the details from the regiments who were temporarily acting as hospital corps men. At Camp George H. Thomas, Ga., the expansions of the division hospitals, under the conditions brought about by the typhoid invasion of the camps, became officially recognized as general hospitals, and were promptly provided by me with the best available medical service, with trained nurses, with all permissible medical and hospital supplies, and with funds for special purchases. The altered conditions under which the division hospitals were operating were immediately recognized by the chief surgeon of the Fifth Army Corps at Santiago on the breakdown of that corps after the surrender of the city, and every effort on the part of his medical officers to care for their sick in regimental hospitals was encouraged by giving them every available facility. Similarly, in other camps, regimental hospitals were in many instances equipped to meet the necessities of the occasion.

General hospitals.—Up to September 30, eleven general hospitals were established and fully manned and equipped. These had a capacity of nearly 7,000 beds. At the same time certain post hospitals having good accommodations were used for the treatment of army cases generally, without alteration of their official status as post hospitals. Those, for instance, at Forts Columbus, Hamilton, and Wadsworth, N. Y., in the East and at the Presidio of San Francisco, Cal., and Vancouver Barracks, Wash., on the Pacific coast, were expanded in this manner. The vacant beds in the

hospitals of the Marine-Hospital Service of the Treasury Department were placed at my disposal and the civil hospitals of the country were ready on call to receive and care for sick and wounded soldiers. These offers of hospital accommodations and medical care were accepted by me in many instances, particularly in New York, Boston, Philadelphia, and Providence, to relieve the tent hospitals at Montauk Point when crowded by the rapid transfer of sick from Santiago.

The medical statistics of the war.—The work of gathering up the records of sickness of the various commands in service during the war has been one of great difficulty. Volunteer medical officers were ignorant of the methods of keeping their records, and many failed to appreciate the importance of what was frequently regarded as "mere paper work" which had no practical bearing on the welfare of their men. Nevertheless their work in this regard must be considered as satisfactory when compared with that of the volunteer medical officers of the war of the rebellion.

My report presents tabulations compiled from monthly reports of sick and wounded rendered from May to September, inclusive, and representing a strength present of 167,168 men. These give full particulars of 1,715 deaths,* of which number 640 were occasioned by typhoid fever, 97 by malarial fevers, and 393 by diarrhea and dysentery. The death rates for May and June—0.46 and 0.70—were not in excess of those of the Army in time of peace. In July the rate became somewhat higher than that of most well-cared-for cities, 2.15 for the month, or the equivalent of an annual rate of 25.80 per thousand living. In August it became excessive—4.08 for the month, equal to an annual rate of 48.96 per thousand. In September the influence of the energetic measures taken in July and August to improve the health of the Army becomes manifest in the falling of the death rate to 2.45, or the equivalent of an annual rate of 29.40. The same progression to an acme in August, with a sudden fall in September, is seen in the various ratios given under the specific titles "Typhoid fever," "Malarial fever," and "Diarrheal diseases." This is exceedingly gratifying, and must be credited, as stated, to the sanitary measures adopted; for our experience in the civil war demonstrates that in the absence of these measures the high ratio of August would have been continued for many months to come.

I submit also tables of absolute numbers and of ratios by which the incidence of sickness and mortality of the regular and volunteer troops may be contrasted. From these it will be seen that the exposure of the regular troops during the Santiago campaign gave them from June to September a higher death rate than the volunteers, and that the rate of the latter during August, the month of maximum mortality, was 3.62 as compared with 5.83 among the regular troops.

Volunteer relief work.—My guiding principle throughout the war has been that relief, when needed, should be promptly accepted without reference to the source from which it came. The relief afforded by the National Red Cross at Siboney was promptly accepted by the surgeons on the spot, but it is evident that it was entirely inadequate to meet the emergency. This association has had full authority to send agents and supplies to all of our camps since June 9, 1898, and it has contributed supplies of various kinds in a most liberal manner for the use of our field hospitals.

Other organizations which have rendered very valuable services are the National Relief Commission, having its headquarters in Philadelphia, and the Massachusetts Volunteer Aid Association, with headquarters in Boston. Both of these organizations fitted out hospital ships, which were placed at my service for the transportation of our sick from Porto Rico, and I take pleasure in testifying to the valuable services rendered by the yacht *May*, of the National Relief Commission, and the hospital ship *Bay State*, of the Massachusetts Volunteer Aid Association.

Special fund.—Sums of money varying from 33 cents sent by Master Oliver S. Whitaker, of Detroit, Mich., to \$5,000 by Mr. Cleveland H. Dodge, chairman of the supply committee National Red Cross Society, have been sent to me to be used

*Reports to the Adjutant-General to September 30, 1898, show 345 killed and died of wounds and 2,485 died of disease, in a mean strength of about 275,000 men.

according to my discretion for the benefit of our sick and wounded soldiers. In all I have received \$24,244.94. Among the contributors have been the Colonial Dames of America, through the treasurer, Miss E. B. Nicholas, of Washington, D. C., \$3,500; the Red Cross Auxiliary No. 3, through Mrs. Winthrop Cowdin, of New York, \$2,000; The Women's War Relief Association, through Mrs. Victoria Raymond, treasurer (contributed for hospital ship *Relief*), \$2,275.

This money has been sent by me principally to general hospitals, to chief surgeons of army corps in the field, and to commanding officers of hospital ships, for use in the purchase of delicacies for the sick.

The medical corps.—Before concluding my report of the operations of the medical department during our short and glorious war with Spain, I feel it my duty to call special attention to the efficient services rendered by the medical officers of the army in the various responsible positions which the exigencies of the service have made it necessary for them to fill. The inadequacy in the number of trained and experienced medical officers has been a source of great embarrassment to me in my efforts to meet the demands of the service; but as a rule our medical officers have performed the duties imposed upon them in a most loyal, intelligent, and zealous manner. They have shared with line officers the dangers of battle, and they have encountered with unflinching courage the more difficult and protracted combat with the infectious diseases which have invaded our camps and filled our hospitals. Many of them have suffered attacks of typhoid and malarial fevers, and at one time no less than 15 per cent of the corps was disabled by sickness.

Of those who accompanied General Shafter's army to Santiago few escaped serious sickness, and two of those who distinguished themselves for their devotion to duty lost their lives as a result of exposure to the malign influences which in so short a time sapped the vitality of the flower of the American Army. But credit is due not alone to those in the field. The labors of those on duty as chief surgeons of military departments, in charge of medical supply depots, and in other important positions, have been enormously increased, and it has required unremitting effort to meet the exigencies of the war.

RECOMMENDATIONS.

The increase of the enlisted strength of the Army to a total of 60,000, and the large number of new stations to be garrisoned in the islands acquired and occupied by the United States, makes an increase in the Medical Corps absolutely essential. I therefore recommend an addition to the number of medical officers now allowed by law, of 2 assistant surgeons-general with the rank of colonel, 6 deputy surgeons-general with the rank of lieutenant-colonel, 30 surgeons with the rank of major, and 50 assistant surgeons with the rank of first lieutenant.

This recommendation is based upon the present organization of the Army. Any increase made by Congress during the coming session will necessitate a further increase of the Medical Corps.

Very respectfully,

GEO. M. STERNBERG,
Surgeon-General, U. S. A.

The SECRETARY OF WAR,
Washington, D. C.

[Memorandum.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, November 26, 1898.

Medical officers, United States Army, with Fifth Army Corps at date of landing in Cuba.....	36
Regimental medical officers.....	16
United States Volunteers.....	1
Civilian.....	1
Contract surgeons.....	20

Joined after the assault, July 2, 1898:	
Medical officers, United States Army	1
Regimental officers	8
Contract surgeons	61
	70
Total	144
Number of members of Hospital Corps on duty with Fifth Army Corps June 30, 1898, as reported by chief surgeon:	
Hospital stewards	18
Acting hospital stewards	25
Privates	207
	250
Gain from July 1 to August 24, 1898, by transfer from Hospital Corps:	
Privates	47
By detail as acting hospital stewards	38
Immune soldiers sent to Santiago about August 11, 1898, as volunteer nurses	50
	135
Total	385

Upon the declaration of war, surgeons were appointed on brigade, division, and corps staffs, as provided by law, but no provision was made in the law for large hospitals; consequently regimental surgeons were detailed to these hospitals and their regiments left with one surgeon only, and he a junior. This should not be. The breaking up of the regimental hospitals was, in my judgment, after the experience we passed through, a mistake; but it could not be avoided and maintain the division and general hospitals, which were indispensable. This branch of the service should be thoroughly equipped and ample provision made to supply the places of surgeons who fall sick or are otherwise unable to attend to their duties. One of the great mercies of the campaign were the female nurses. Until one has had experience or made careful observation he can not realize the work that these noble women did for our sick soldiers in hospitals; but they can not well be employed at regimental hospitals, especially in an active campaign.

The division and general hospitals are an absolute necessity. Where large numbers of sick are gathered together a supply of all delicacies can be kept in abundance, and refrigerators, cooking outfits, and everything needed for the sick can be constantly kept on hand. The general or division hospitals should, however, in my opinion, be divided into wards assigned to separate regiments, and, as far as possible, to the companies of those regiments, thus keeping the men who serve in the same command as much together during their sickness as possible. It cheers them when their comrades are near at hand, and they are more confident and hopeful than when placed upon cots among strangers.

The Red Cross and other relief associations contributed in a very large degree to the care and comfort of our sick soldiers, and should receive the grateful thanks of the nation for the work they so nobly and unselfishly rendered.

On April 25, 1898, the following circular was issued by the Surgeon-General and distributed throughout the Army for observance in the field. Had it been strictly followed, less sickness would have resulted:

CIRCULAR }
No. 1. }

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,

Washington, April 25, 1898.

In time of war a great responsibility rests upon medical officers of the Army, for the result of a campaign may depend upon the sanitary measures adopted or neglected by commanding generals of armies in the field. The medical officer is responsible for proper recommendations relating to the protection of the health of troops in camp or in garrison, and it is believed that, as a rule, medical officers of the United States Army are well informed as to the necessary measures of prophylaxis and the serious results which infallibly follow a neglect of these measures, especially when unacclimated troops are called upon for service in a tropical or semitropical country during the sickly season. In Cuba our armies will have to contend not only with malarial fevers and the usual camp diseases—typhoid fever, diarrhea, and dysentery—but they will be more or less exposed in localities where yellow fever is endemic and under conditions extremely favorable for the development of an epidemic among unacclimated troops. In view of this danger, the attention of medical officers and of all others responsible for the health of our troops in the field is invited to the following recommendations:

When practicable, camps should be established on high and well-drained ground not previously occupied.

Sinks should be dug before a camp is occupied, or as soon after as practicable. The surface of fecal matter should be covered with fresh earth or quicklime or ashes three times a day.

New sinks should be dug and old ones filled when contents of old ones are two feet from surface of ground.

Every man should be punished who fails to make use of the sinks.

All kitchen refuse should be promptly buried and perfect sanitary police maintained.

Troops should drink only boiled or filtered water and coffee or tea (hot or cold), except where spring water can be obtained which is pronounced to be wholesome by a medical officer.

Every case of fever should receive prompt attention. If albumen is found in the urine of a patient with fever, it should be considered suspicious (of yellow fever) and he should be placed in an isolated tent. The discharges of patients with fever should always be disinfected at once with a solution of carbolic acid (5 per cent) or of chloride of lime (6 ounces to gallon of water), or with milk of lime, made from fresh quicklime.

Whenever a case of yellow fever occurs in camp, the troops should be promptly moved to a fresh camping ground located a mile or more from infected camp.

No doubt typhoid fever, camp diarrhea, and probably yellow fever are frequently communicated to soldiers in camp through the agency of flies, which swarm about fecal matter and filth of all kinds deposited upon the ground or in shallow pits, and directly convey infectious material, attached to their feet or contained in their excreta, to the food which is exposed while being prepared at the company kitchens or while being served in the mess tent. It is for this reason that a strict sanitary police is so important. Also because the water supply may be contaminated in the same way or by surface drainage.

If it can be avoided, marches should not be made in the hottest part of the day—from 10 a. m. to 5 p. m.

When called upon for duty at night or early in the morning, a cup of hot coffee should be taken.

It is unsafe to eat heartily or drink freely when greatly fatigued or overheated.

Ripe fruit may be eaten in moderation, but green or overripe fruit will give rise to bowel complaints. Food should be thoroughly cooked and free from fermentation or putrefactive changes.

In decidedly malarious localities from 3 to 5 grains of quinine may be taken in the early morning as a prophylactic; but the taking of quinine as a routine practice should only be recommended under exceptional circumstances.

Light woolen underclothing should be worn, and when a soldier's clothing or bedding becomes damp from exposure to rain or heavy dews, the first opportunity should be taken to dry it in the sun or by fires.

GEO. M. STERNBERG,
Surgeon-General, U. S. A.

PAY DEPARTMENT.

WAR DEPARTMENT, PAYMASTER-GENERAL'S OFFICE,
Washington, October 21, 1898.

SIR: I have the honor to submit the following summary of my annual report for the fiscal year ending June 30, 1898:

RECEIPTS AND EXPENDITURES.

A general statement of all amounts received and expended during the year ending June 30, 1898. Total received and accounted for, \$23,499,969.47.

The expenditures of the present fiscal year exceeded those of the preceding year by \$2,326,804.11. The increase is accounted for by the fact that by act of March 8, 1898, two additional regiments were added to the strength of the Regular Army, and again under act of April 22, 1898, the Regular Army was increased to its maximum strength—61,000. Under the same act about 220,000 volunteers were called into the service, making an aggregate army of regulars and volunteers of about 280,000 enlisted men. Estimates were prepared and submitted to Congress, and liberal appropriations were made to meet the payment of this extraordinary force.

COLLECTIONS.

Statement of collections in favor of other bureaus of the War Department aggregate \$169,624.18.

SOLDIERS' DEPOSITS.

A recapitulation by years of soldiers' deposits show a steady increase in the number and aggregate amount of deposits.

The increase in deposits is an evidence of a growing interest on the part of the enlisted men of the Army in the provisions of the Government to assist the soldier to save his earnings. The deposit system applies to both regular and volunteer soldiers.

MILEAGE PAYMENTS.

An analytical statement of mileage disbursed during the year.

The question of mileage has been quite satisfactorily and equitably settled by the allowance of 7 cents per mile. I have two recommendations to make, however, in regard to this matter of mileage which will expedite the settlement of accounts.

First. That a uniform rate of 3 cents per mile be deducted for travel over all bonded and land-grant railroads.

Second. That the table of distances prepared by the War Department, under the direction of the Secretary of War, be adopted as the authority for the settling of the mileage accounts, both in this Department and in the Treasury Department, and be so recognized by law.

SYSTEM OF PAYMENT.

During the past year all payments to the Army have been made monthly. While a portion of the Army has been paid by check or currency by express, all of the forces in active service have been paid by the paymaster in person. The payments in many cases have been quite complicated, owing to the fact that authority was given to muster the several State organizations into the service in accordance with the State laws. In many instances the State organizations differed from the organization of the United States Army, both in number and rank of officers and enlisted men. This gave rise to many questions of rank and pay, which required settlement, and the Department was continually appealed to for instructions and directions in settling these questions. The payments, however, have been met with promptness and regularity.

Since the close of the fiscal year covered by this report, and up to the date of its rendition, October 25, this Department has endeavored to pay monthly the troops in the field, scattered over two hemispheres, and has fairly well accomplished the task.

In addition to the regular payments, the payment of mustered-out troops has imposed much additional labor, but so far all have been paid without delay.

The large number of regiments and independent commands yet to be mustered out will severely tax the energies of the entire Pay Corps, but the zeal they have shown gives assurance that, however arduous the labor, it will be promptly and satisfactorily performed.

ADDITIONAL PAYMASTERS.

The increase in the Army necessitated an increase in the force of the Pay Corps to enable the Department to make prompt payments; therefore, on request of the Paymaster-General, the President had, on June 30, 1898, increased the corps by 72 additional paymasters.

These officers and their clerks entered the service with very little or no knowledge or experience in regard to army accounts, and it appeared necessary to place them under instruction to fit them for their duties. Accordingly a school of instruction was organized in which each was made familiar with the necessary forms to be used in payments and the principles of making and rendering accounts. As a result each officer entered upon his duties with a fair knowledge of the business before him.

This preparation has borne its result, as the payments to troops have been made promptly and intelligently, resulting in fewer errors than would have otherwise occurred.

EXAMINATION OF ACCOUNTS.

By section 12, act of July 31, 1894, it is required that accounts in this office shall be transmitted to the Auditor for the War Department within twenty days after receipt. With the increased amount of work it is very difficult to comply with the above requirements and do justice to the accounts, and I therefore ask that legislation may be had giving the Secretary of the Treasury the same authority in regard to relaxing the rules and regulations in regard to the rendition of accounts by the administrative departments beyond the limit of twenty or sixty days as in the case of rendition of accounts by the accounting officers.

INCREASE IN THE REGULAR FORCE OF THE PAY CORPS.

While the strength of the Regular Army has been more than doubled numerically, the number of regular paymasters has remained the same. The duties of regular paymasters, when assigned as senior officers in charge of additional paymasters, in making payments have been both responsible and difficult, as they were not only required to make their own payments, but also direct and assist the new officers in

their duties. Several of the majors have been assigned to new stations at very remote points, as at Manila, Porto Rico, and Cuba, with large sums of money in their charge for distribution to the paymasters accompanying them. Being so far distant, they have been called upon to decide many important and difficult questions, in the matter of payments, requiring thorough knowledge and experience in their line of work. Very capable officers have been found for these responsible positions, and while other staff officers, with the rank of colonel and lieutenant-colonel, are filling similar positions in their several departments, the paymasters, with quite as great responsibilities, are only ranked as majors.

In view of the foregoing facts—the increased Army and added responsibilities—I earnestly recommend that to the present Pay Corps of the Army there may be added 3 assistant paymasters-general, 5 deputy paymasters-general, and 20 majors and paymasters. The promotions to colonel and lieutenant-colonel to be made from the officers now in the Pay Department, according to seniority, and upon the mustering out of the volunteer forces and the reduction of the Regular Army to the basis prior to the act of April 26, 1898, no appointments to be made in the Pay Department until the number of officers in each grade shall be reduced to the number authorized prior to the date of the act above mentioned.

PERSONNEL.

April 30, 1898, Maj. William Arthur retired from active service, under section 1243, Revised Statutes.

May 2, 1898, Harry L. Rogers was appointed major and paymaster to fill vacancy.

June 10, 1898, Col. G. W. Candee, assistant paymaster-general, died at Chicago, Ill.

June 10, 1898, Lieut. Col. A. B. Carey was promoted to colonel and assistant paymaster-general to fill vacancy.

June 10, 1898, Maj. C. I. Wilson was promoted to lieutenant-colonel and deputy paymaster-general to fill vacancy.

June 15, 1898, J. A. Watrous was appointed major and paymaster to fill vacancy.

PAYMASTERS' CLERKS.

There is no class of employees in the service of the Government who are so poorly paid in proportion to their services as the paymaster's clerk. The work requires men of first-class abilities and they have expenses to bear in change of station, etc., corresponding with that of an officer. I, therefore, again recommend an increase in their compensation.

CLERICAL FORCE.

The regular clerical force in the Paymaster-General's Office has shown the result of thorough training and experience in official duties. Their work has been very heavy and required many extra hours service daily. This they have accomplished willingly, at the same time instructing the new appointees and additional paymasters in their several duties.

I would earnestly recommend that Congress be requested to make appropriation for payment to the clerks who have rendered extra service during the period of the war.

Very respectfully,

The SECRETARY OF WAR.

T. H. STANTON,
Paymaster-General, U. S. A.

From the report of the Paymaster-General it appears that all payments to the Army have been made with promptness and regularity, as well as the payment of troops mustered out of service.

He recommends that in the payment of mileage to officers a uniform rate of 3 cents per mile be deducted for travel over all bond-aided and

land-grant railroads; and that the table of distances prepared by the Department be recognized by law as authority for the settling of mileage accounts. These recommendations are concurred in, as also his recommendation for an increase of the Pay Corps of the Army, and the compensation of paymasters' clerks.

ENGINEER DEPARTMENT.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, September 29, 1898.

SIR: In compliance with your instructions I have the honor to present the following synopsis of my annual report for the fiscal year ending June 30, 1898:

OFFICERS OF THE CORPS OF ENGINEERS.

At the close of the fiscal year the Corps of Engineers consisted of 123 officers, 35 of whom were detached from the command of the Chief of Engineers and on duty with the armies in the field, at the United States Military Academy, with the Light-House Establishment, and with the Commissioners of the District of Columbia.

The other officers of the corps were busily engaged during the year in charge of important public works connected with permanent fortifications, submarine defenses, improvement of rivers and harbors, construction of canals, construction and repair of light-houses, public buildings and grounds in the District of Columbia, Washington Aqueduct, as members of Board of Engineers, the Mississippi River Commission, the Missouri River Commission, the Deep Waterways Commission, the California Débris Commission, and on duty with the Battalion of Engineers and the United States Engineer School at Willets Point, N. Y.

The calls for engineer officers for duty with the armies in the field could be met only in part, owing to the necessity of constructing the numerous works of fortifications, the planting and maintenance of submarine mines for defense, and the continuance of the elaborate works of river and harbor improvement.

This fact was brought to the attention of Congress, and by the act approved July 5, 1898, the Corps of Engineers was increased from 109 to 127 officers.

BATTALION OF ENGINEERS.

The maximum authorized enlisted strength of the Battalion of Engineers is 5 companies of 150 men each. During the war with Spain Company A has been serving with troops at the Philippine Islands; Companies C and E have been serving with the army operating in Cuba; Company D, with details from other companies (in all, 153 men), has been detached for submarine mining duty at 19 harbors on the Atlantic, Gulf, and Pacific coasts, and Company B has been busily engaged at the engineer depot at Willets Point, receiving, storing, and distributing the vast amount of torpedo materials, instruments, ponton equipage, and siege materials purchased and distributed from the depot, and in preparing and maintaining the submarine-mine defenses at the eastern entrance to New York Harbor.

SEACOAST DEFENSES.

During the fiscal year projects for permanent seacoast defenses were prepared, and approved by the Secretary of War, for Port Royal, S. C., St. Johns River, Florida, Tampa, Fla., and Sabine Pass, Tex., making thirty localities in the United States for which permanent defenses have thus far been approved under the general scheme recommended in 1886 by the Board on Fortifications, generally known as the Endicott Board.

At the close of the fiscal year the construction of permanent modern defensive works was in progress at twenty-five localities.

In consequence of the war with Spain and the possibility of hostile attacks upon our coasts, urgent and pressing demands were made by Senators, Representatives, and local business interests for the immediate erection of seacoast batteries at numerous points not contemplated in the general scheme of national defense. When it is considered that the aggregate length of the coast of the United States, exclusive of Alaska, is about 5,715 miles, and that more than 700 towns and villages on this extensive line can be attacked by ships drawing 10 feet or more of water, the practical impossibility of immediately and adequately defending every vulnerable point becomes readily apparent.

Temporary batteries were ordered at Bar Harbor, Me., Stonington, Bridgeport, and New Haven, Conn., Port Royal and Georgetown, S. C., Brunswick and Darien, Ga., mouth of St. Johns River, St. Augustine, Miami, and Tampa, Fla., and Sabine Pass, Tex.

The armaments were overhauled and additional guns mounted at Fort Knox, Fort Popham, Fort Trumbull, Fort Monroe, Fort Macon, Fort Pulaski, Fort Clinch, Fort Morgan, Fort Jackson, and the forts in San Francisco Bay.

While no hostile attacks were made upon our coasts during the war with Spain, the operations of the American fleet on the coasts of Cuba and Porto Rico have amply demonstrated the value of coast defenses, including shore batteries and submarine mines, in resisting naval attacks.

It may be confidently asserted that the completion of the projects upon which operations are now in progress will practically insure the safety of our principal harbors and seacoast cities against any attacks from sea. One other important deduction may also be drawn from the results of the war, namely, the great value and efficacy of the rapid-fire gun.

GUN AND MORTAR BATTERIES.

Existing projects for seacoast defenses contemplate the emplacement of about 500 heavy guns of 8, 10, 12, and 16 inches caliber, of about 700 rapid-fire guns of various calibers, and of about 1,000 mortars. The estimated approximate cost of the engineering work connected with the installation of this armament is \$55,000,000.

Since the inauguration of the modern system of coast defense, Congress has made appropriations for the construction of permanent gun and mortar batteries as follows:

Act of—		Act of—	
August 18, 1890.....	\$1,221,000	Allotted by the President	
February 24, 1891.....	750,000	from act of March 9,	
July 23, 1892.....	500,000	1898.....	*\$3,797,000
February 18, 1893.....	50,000	May 7, 1898.....	3,000,000
August 1, 1894.....	500,000	July 7, 1898.....	2,562,000
March 2, 1895.....	500,000	Total	19,121,333
June 6, 1896.....	2,400,000		
March 3, 1897.....	3,841,333		

With the funds indicated in the foregoing table, provision has been made for mounting 288 heavy seacoast guns, 254 rapid-fire guns, and 312 mortars, or about 57 per cent of the total projected armament of heavy guns, 36 per cent of the rapid-fire guns, and 31 per cent of the mortars.

This armament has been placed at 71 localities in 29 harbors of the United States.

* Includes twenty-one 8-inch breech-loading rifles temporarily mounted on modified 15-inch smoothbore carriages.

The total number of emplacements provided for, and either completed or under construction at the beginning of the fiscal year, was as follows:

12-inch	24
10-inch	82
8-inch	33
Rapid-fire	16
12-inch mortars.....	232

The total number of emplacements completed or under construction at the close of the fiscal year was as follows:

12-inch	74
10-inch	102
8-inch	80
Rapid-fire	62
12-inch mortars.....	312

When the diplomatic relations with Spain began to assume a threatening character, orders were given to push work with all possible energy and to mount every available gun as fast as delivered. Operations were carried on with double, and in some cases three shifts of workmen, and were pushed regardless of weather and climate; the extraordinary efforts made have resulted in most gratifying progress, especially in the number of guns available for service; there were mounted during the year six 12-inch guns, fifty-two 10-inch guns, thirty 8-inch guns, twenty-six rapid-fire guns, and seventy-one 12-inch mortars.

The status of works at the close of the year was as follows:

	12-inch.	10-inch.	8-inch.	Rapid-fire.	12-inch mortars.
Guns mounted	16	70	35	26	144
Platforms ready for armament	27	28	7	16	64
Under construction	31	4	38	20	104
Total.....	74	102	80	62	312

The care and service of this modern armament has largely increased the responsibilities devolving upon the artillery arm of the service and has developed a defect in its organization which calls for prompt remedy through Congressional legislation.

The new batteries either have been or will shortly be equipped with electric-light and power plants for lighting magazines and passageways, and for operating ammunition lifts; a still further extension of the application of electrical power is sought by the artillery arm, and may be realized in the near future. The plants installed for the purpose by the Engineer Department, while as simple as circumstances will permit, demand for their proper care, preservation, and operation a greater degree of mechanical and electrical intelligence than can ordinarily be supplied by the enlisted men of the artillery. It is very desirable that all operations connected with the service of modern batteries be conducted by men regularly enlisted and amenable to military discipline, and it is earnestly recommended that legislation be obtained providing for the enlistment in each battery of artillery of two or more machinist electricians, with the rank of sergeant, and at a rate of pay which will secure a class of men capable of properly caring for and operating the electric-light and power plants of modern batteries.

As new batteries are being completed and transferred to the artillery, questions of tactics and organization are arising which require careful consideration in order that the highest efficiency may be realized from the new system of defenses. These defenses for any locality comprise not only gun and mortar batteries, but submarine mines, search lights, and position-finding instruments, each separate element demanding a high degree of technical skill and involving the functions of the artillery arm.

and of the Engineers, the Ordnance, and Signal departments. The complexity and variety of the elements of a perfected modern scheme of seacoast defense demand a single head at each locality, who shall be responsible for the conduct of the defense and to whom all others shall be subordinate.

In this connection attention is invited to the views of Brig. Gen. George L. Gillespie, U. S. Volunteers, colonel, Corps of Engineers, upon the duties of a fortress commander as applied to the defenses of New York Harbor, printed as Appendix 3 of my report.

SUBMARINE MINES.

During the past two years the question of the revision of the torpedo system has been under consideration by a special board of engineer officers. A number of improvements in the details of the materials and in the operation of the system were recommended after their superiority had been demonstrated by practical trials at the United States Engineer School at Willets Point. The labors of the board had been practically completed at the outbreak of the war; but, unfortunately, neither time nor funds were available for immediately replacing the old-style apparatus with the new and improved, and it became necessary to use the former to a large extent in mining the various harbors of the country for defense.

At the outbreak of hostilities there were on hand a considerable number of mine cases and a limited quantity of operating apparatus, but no cable, explosives, search lights, or any of the multitude of minor articles needed to plant and operate the mines. Steps were at once taken to procure as rapidly as possible all needed material for placing in position at every important harbor a preliminary line of mines.

The total allotments from the appropriation for national defense, made for the torpedo defenses of the country, aggregated \$1,540,000; in addition, the deficiency act of May 4, 1898, appropriated \$50,000 for purchase of material and \$300,000 for planting and maintaining mine fields.

Only the more important items of torpedo material purchased can be given here. They comprise about 400 miles of single and multiple cable, 150 tons of explosives, 1,650 new torpedo cases, 44 electric search lights, 1,500 compound plugs for mines, 4,500 circuit closers and regulators, and 17 sets of casemate operating apparatus.

At the close of the fiscal year over 1,500 submarine mines had been planted in 28 different harbors, with all their cables, anchors, junction boxes, and the necessary operating apparatus installed.

For the preservation and maintenance of the mine fields it was necessary to enforce special rules, approved by the Secretary of War, for the navigation of friendly vessels, involving the employment of a large number of tugs and boats, with a numerous personnel, at an approximate daily cost of about \$3,000.

To enable further alterations and improvements to be made in existing mining casemates, and for the construction of additional casemates, cable tanks, and storehouses at a number of localities, an appropriation of \$100,000 is requested.

SITES FOR FORTIFICATIONS.

During the past fiscal year title has been obtained to sites required for seacoast defenses at Boston, Mass.; eastern entrance to Long Island Sound; southern entrance to New York Harbor; Port Royal, S. C.; Key West, Fla.; Galveston, Tex., and Puget Sound, Washington. Negotiations are still in progress for the acquisition of sites at Boston, Mass.; Narragansett Bay, Rhode Island, and Puget Sound, Washington. Since the close of the fiscal year the land required on Fishers Island, at the eastern entrance to Long Island Sound, has been obtained.

The acquisition of land for seacoast defenses is in nearly every case attended by annoying delays, particularly where the aid of courts must be invoked through the medium of condemnation proceedings. A number of important sites must still be secured, and, as all funds hitherto appropriated have been expended or pledged, an appropriation of \$300,000 is requested to continue acquisition of sites.

ESTIMATES.

The estimates for engineering work of seacoast defenses, submarine mines, and sites for fortifications for the fiscal year ending June 30, 1900, is as follows:

For gun and mortar batteries.....	\$4, 300, 000
For parapets and magazines for pneumatic dynamite guns	110, 000
For torpedoes for harbor defense.....	100, 000
For sites for fortifications	300, 000
For preservation and repair of fortifications	100, 000
For plans for fortifications	5, 000
For sea walls and embankments.....	2, 500
Total	4, 917, 500

THE UNITED STATES ENGINEER SCHOOL AND ENGINEER DEPOT AT WILLETS
POINT, N. Y.

The object of the Engineer School at Willets Point, N. Y., is to provide a post-graduate course in engineering for the young officers of the Corps of Engineers, and to give them practical instruction in their duties with engineer troops, in submarine mining, and in higher civil and military engineering, in order to better fit them for the important and responsible work which devolves on the Corps of Engineers. The advantages offered by the school in training young engineer officers for their future duties and in imparting a knowledge of the submarine-mine system were fully demonstrated during the recent war with Spain.

The garrison consisted of three companies of engineer troops until the declaration of war, when the operations of the school were suspended and nearly all the officers assigned to duty in the field.

The object of the Engineer Depot is to continue torpedo experiments, both for offensive and defensive purposes; to purchase, test, receive, store, and distribute submarine mining material, ponton equipage, intrenching tools, instruments, etc.

Attention is invited to the estimate of \$10,000, presented in detail in my report of September 29, 1898, for the Engineer Depot and School at Willets Point, N. Y.

RIVERS AND HARBORS.

The condition of the various works for the improvement of rivers and harbors carried on under appropriations made by Congress is given in detail in my report for the past fiscal year. No additional appropriations were made by Congress at its last session for the general improvement of rivers and harbors, except in the case of works carried on under continuous contract, and the only funds available have been balances remaining available from appropriations of June 3, 1896. Work has therefore been suspended at many points during the past year.

The total amount actually expended for the improvement of rivers and harbors during the fiscal year ending June 30, 1898, is as follows:

For general improvement of rivers and harbors.....	\$13, 395, 428. 84
For removal of wrecks	51, 334. 19
For operating dredge boats and snag boats	66, 432. 36
For operating canals and other works of navigation.....	671, 368. 04
For work under Mississippi River Commission.....	2, 536, 786. 09
For work under Missouri River Commission, including improvement of Gasconade and Osage rivers, Missouri	424, 741. 60
For gauging waters of the Lower Mississippi River and its principal tributaries.....	5, 998. 39
For examinations and surveys of South Pass, Mississippi River	* 9, 709. 57
Total	17, 161, 799. 08

* This amount is exclusive of the sum paid the executors of the estate of James B. Eads for "maintaining jetties and other works at South Pass, Mississippi River."

Since the last report was submitted appropriations for rivers and harbors have been made by joint resolution approved April 11, 1898, providing \$2,000, the sundry civil act, approved July 1, 1898, providing \$14,492,459.56, and the deficiency act, approved July 7, 1898, providing \$360,001.02.

The total estimate submitted for the fiscal year ending June 30, 1900, for continuous work authorized by Congress and by the Secretary of War, is \$12,883,437. The items making up this amount are such as Congress has authorized to be expended during the year ending June 30, 1900, at the various localities for which continuing work is authorized, and Congress has virtually pledged itself to provide the amounts for which requisition is made.

In addition to the estimate submitted for work under continuing contracts, an estimate is presented for the construction and maintenance of works which have been authorized by Congress, but not provided for by such continuing contracts, amounting to \$15,580,341. The items making up this amount are the amounts which can be profitably expended in carrying on during the fiscal year ending June 30, 1900, the projects adopted by Congress. The estimates are submitted in accordance with the requirements of the sundry civil act of June 4, 1897, which provide " " " And hereafter the Secretary of War shall annually submit estimates in detail for river and harbor improvements required for the ensuing fiscal year to the Secretary of the Treasury to be included in, and carried into the sum total of, the Book of Estimates."

The act of June 3, 1896, authorized the Secretary of War to enter into contract for the completion of a number of works, and contracts have already been made, or the required preliminary steps to that end have been taken in all cases.

The work of the Mississippi River Commission during the past year has been in accord with the plan adopted by the Commission January 11, 1896, which provided for the dredging of channels and the construction and maintenance, in cooperation with the State and local authorities, of an effective levee system. The Commission has now provided 7 dredges for service at shoal places during low water.

The Missouri River Commission again calls attention to the fact that the progress of work for the systematic improvement of the river by continuous work by reaches is seriously interfered with by requirements of law which specify numerous localities, separated by many miles, where work is required to be done, and directing that the money to do such work be taken from the appropriation made for systematic improvement of the river. Work at special localities, if directed by Congress, should be provided for by separate appropriations.

The results obtained on this river have shown beyond question the practicability of controlling the river, holding its banks, and giving ample channels for navigation; but the cost and uncertainty of permanence of the work and the slow progress heretofore made have been such as to discourage those interested in the effort to improve the river for such a distance as would give promise of building up its commerce to a degree commensurate with the cost of the work.

The commerce passing through the St. Marys Falls Canal during the navigable season of 1897 comprised 18,982,755 tons of freight, an increase of nearly two and three-quarter millions, or about 17 per cent, over that for 1896, and valued at \$218,235,927.77; and that through the Detroit River is estimated to be something over 30,000,000 tons.

The commerce of the Great Lakes has increased so enormously that accurate charts can only be procured by constant examinations and surveys of new shoals as they become known, and corresponding corrections of and additions to the engraved plates; therefore the appropriations asked for these purposes are recommended.

The item of appropriation for completing the 20-foot connecting channel on the Great Lakes, in sundry civil act of June 4, 1897, provided for certain observations and investigations in connection with the preservation of such channel depth. A limited allotment from this appropriation, together with the allotments from Lake

Survey appropriations, is being used for the inauguration of the observations and investigations necessary for determining the variation of lake levels and the extent to which they may be regulated, and in what way the navigable channels may be best preserved. The Deep Waterways Commission is cooperating in the work so far as their means permit. This work is of very great importance to the immense commerce of the lakes and should be continued through several years. It is estimated that the cost of the work which it is desirable to have carried out during three years is \$250,000, and an appropriation of \$100,000 for continuing the work during the year 1900 is urgently recommended.

WASHINGTON WATER SUPPLY.

The District appropriation act for the year 1899 provides for an investigation as to the feasibility and propriety of filtering the water supply of Washington. This work is now under way, and a full report thereon will be submitted to Congress.

The same act provided for resumption of work on the Washington Aqueduct tunnel and the Howard University reservoir. The necessity for an additional conduit between Great Falls and the distributing reservoir has become most apparent, and I strongly recommend that provision be made for this work in the near future.

ARLINGTON MEMORIAL BRIDGE.

The sundry civil act of June 4, 1897, made provision for surveys, etc., for a memorial bridge from the old Naval Observatory grounds in this city to Arlington National Cemetery. A report upon this subject was submitted in March, 1898, and is printed as House Doc. No. 388, Fifty-fifth Congress, second session.

DEEP WATERWAYS BOARD.

The sundry civil act of June 4, 1897, also provided for the appointment of a board to make such surveys and examinations of deep waterways between the Great Lakes and the Atlantic tide waters as were recommended in the report of the Deep Waterways Commission transmitted to Congress January 18, 1897. The board, consisting of Lieut. Col. Charles W. Raymond, Corps of Engineers, and Messrs. Alfred Noble and George Y. Wisner, civil engineers, is now engaged in the duties assigned under the provisions of the act.

SOUTHWEST PASS BOARD.

The board of engineer officers appointed under the provisions of joint resolution No. 9, approved February 17, 1898, for the purpose of making a survey and report upon the practicability of securing a navigable channel of adequate width and of 35-foot depth at mean low water of the Gulf of Mexico throughout the Southwest Pass of the Mississippi River, is now engaged in the performance of the duty imposed, and it is expected that their report on this subject will be completed in time to permit of its submission to Congress before the close of its next session.

PUBLIC BUILDINGS AND GROUNDS IN WASHINGTON, D. C.

The improvement of public buildings and grounds and maintenance of the Washington Monument have been carried on under appropriations made by Congress, and, as far as funds permitted, the work has progressed in such manner as to secure the best results. The estimates for this purpose for the coming fiscal year are given in detail in my annual report, and amount to \$184,846.

MILITARY MAPS.

Special attention is invited to the item relative to the compilation and publication of military maps for use of the War Department, and particularly those required in connection with harbors adjacent to new fortifications. An appropriation of the small amount asked for is strongly recommended.

Very respectfully, your obedient servant,

JOHN M. WILSON,

Brig. Gen., Chief of Engineers, U. S. Army.

Hon. R. A. ALGER, *Secretary of War.*

Attention is invited to the details given in the report of the Chief of Engineers, which show the progress made in the erection of permanent and temporary batteries for seacoast defense, and the great amount of work accomplished. The mines planted in the harbors have been removed and most of them safely stored for preservation.

There should be in the service a force of practical engineers skilled in the manufacture and setting up of all electrical appliances and machinery; and attention is invited to the recommendation of the Chief of Engineers on this subject. It is important that the legislation recommended be enacted at the present session of Congress, in order that the valuable electric-light and power plants at fortifications may not deteriorate.

In all cases of new works for river and harbor improvements it is recommended that a board of skilled engineers examine the proposed work, reporting upon the cost and also upon the need for such improvements before appropriations for such works are made.

A large number of engineers should be educated at West Point for assignment to that branch of the service. The Government is spending many millions of dollars upon great works of harbor and other improvements, and a single officer is given a number of public works to look after, taking much of his time traveling from one to another. A young officer should, in my judgment, be placed permanently with each work and supervise it constantly, reporting to his chief.

The several recommendations of the Chief of Engineers are the result of mature judgment and careful consideration, and the favorable action of Congress thereon is recommended.

MEMORIAL BRIDGE.

Attention is invited to the report submitted to Congress in March last upon the proposed memorial bridge across the Potomac River from the old Naval Observatory grounds to the Arlington Reservation. The recommendations heretofore made for the construction of this bridge are renewed.

DEEP WATERWAYS COMMISSION.

The Deep Waterways Commission has not yet filed its report, but is steadily at work and will be enabled to report in time for the next session of Congress.

Especial attention is called to the remarkable increase of the commerce of the Great Lakes as shown in the report of the Chief of Engineers, much of which is due to the deep waterways channel through the connecting waters of the lakes, which has been completed.

ORDNANCE DEPARTMENT.

OFFICE OF THE CHIEF OF ORDNANCE,
UNITED STATES ARMY,
Washington, October 19, 1898.

SIR: In compliance with your instructions of 18th instant, I have the honor to submit herewith a synopsis of the report of the operations of the Ordnance Department for the fiscal year beginning July 1, 1897, and ending June 30, 1898.

When the first call for volunteers from the States for the war with Spain was made, it was decided to take as many of the regiments of the National Guard as possible, already armed and equipped by the States. Steps were taken to get correct records and lists of the stores furnished, with a view to submitting the same to Congress at its next session for such action as might be deemed advisable for restoring to the States material furnished by them. When the muster out of the volunteer troops commenced, it was necessary in some cases, on account of the needs of the National Guard, to return a portion of the arms and equipments turned over. This was authorized and the stores turned over to the States are charged against their credit for the present.

The question as to the advantage of having States furnish arms and equipments to troops mustered into the United States service requires careful consideration. The supposition was that by following this method, the State troops, being already armed and equipped, would be ready for immediate service. This was based on the supposition that the arms and equipments were in good condition, an expectation not generally realized during the war. It is probable that the troops would have been ready for service as quickly by being equipped anew. Some organizations would not have been ready for service quite as soon; others would probably have been ready earlier, and the difficulty of making settlements satisfactory to the States and the United States with reference to ordnance property turned over would have been avoided. Also, it would have been known that all material furnished was in good order, and the confusion that resulted from having regiments in the service with arms and equipments which had to be almost immediately condemned and afterwards replaced would have been avoided.

The work at the arsenals and other ordnance establishments and the work under contract was enormously increased during a portion of the year, in consequence of the war with Spain. The greatest and most important part of the work in the origin was increasing rapidly the coast defense. Later, after the first call for troops, the duty was imposed upon the Department of arming and equipping, almost immediately, a large army of infantry, cavalry, and artillery. So long as the principal dependence in this country in time of war is on a force newly levied, it will hardly be practicable to keep on hand large supplies of equipments which in a few years will deteriorate and have to be materially modified to keep pace with improvements. The major portion of such material can, by taking advantage of the resources of Rock Island and other arsenals and numerous private establishments capable of producing it, be supplied as rapidly as troops can be mustered into service and prepared for campaign. There should, however, be on hand field and siege artillery, with carriages and a portion of the harness for 500,000 men, as such guns and carriages can not be turned out in large numbers until after about six months' preparation; but if sufficient of this material were on hand for an army of 500,000 men, the resources of the Department and the country would provide additional field and siege material rapidly enough to supply the troops as raised.

A supply of ammunition for field and siege guns sufficient for three months should at all times be kept on hand, as by the expiration of that period the plant now established at Frankford Arsenal and the one which should be installed at Rock Island would then be capable of meeting all requirements.

The question of the supply of small arms presents difficulties. Changes and improvements in such arms make it impracticable to keep even large standing armies armed with the very latest and best arms. A nation that does not keep a standing army is less likely to undergo the great cost of changing arms in store to be ready to furnish the latest patterns immediately. When the model of a rifle is changed, however, it is thought that a supply of at least 100,000 should be procured by purchase and manufacture at the earliest moment that the resources of the arsenals and country can produce them, and machinery should be installed at Springfield and Rock Island for the production of about 2,500 stand per day. After a sufficient reserve is established, some 35,000 per year should be manufactured, as experience has shown that this number will add to the supply required as rapidly as is desirable, provided always that machinery has been installed for rapid increase of output.

The machines principally used in the manufacture of small arms are of commercial pattern, while the special cutters and other tools actuated by the machines alone, as a rule, change with the pattern of the gun. Although many arms might, if sufficient warning were given, be purchased abroad, the very best would not likely be on hand and could not be purchased in time even if they could be delivered in this country, which a state of war might render difficult. Therefore the policy of relying upon our own resources is best. In this way the arms produced would always be of the latest and best patterns. With a sufficient supply on hand for immediate issue and the installation of a large enough plant at the armories, they could be produced as rapidly as the armies could be raised and disciplined. When changes of pattern are necessary, we can hardly expect that Congress will provide for changing at once the reserve arms kept on hand, and it must always be anticipated that patterns not the very latest may have to be issued temporarily until others can be manufactured.

It is not possible to provide quickly for coast defense. Estimates should be submitted each year for so much work as the facilities of production will permit. This is the plan which has been adopted and consistently worked on for some years for providing and completing coast defense, and which could soon be finished; but the work can not progress faster than the appropriations. Large reductions from time to time have been made in the estimates of this Department, and where such reductions have occurred effort has been made to leave those which relate to material that is procured with difficulty as great as possible. Following this course, the Department had on hand at the outbreak of the war, for coast defense, more guns than carriages, because the carriages could be procured at several establishments, the guns at only two. There were more guns and carriages on hand than projectiles or powder, because these can be procured more rapidly than the guns and carriages. A well-balanced system, however, with estimates filled for all the material necessary to install the guns and carriages and provide them with a sufficient number of rounds of ammunition and with all their equipments, should be made at one time.

It was necessary to arm a large portion of the army with the caliber .45 rifle, owing to the fact that it was the only gun available in large quantities for the purpose, and that a large portion of the troops called into service were already armed with it and familiar with its use. It is not claimed by the Ordnance Department that the caliber .45 single-loader is equal to the United States magazine rifle, caliber .30, which replaced it, but it is claimed that it is by no means as inferior as has been asserted. Its simplicity and security from getting out of order under the roughest usage made it valuable to new troops. Its rate of fire is sufficient for all cases where aimed fire is to be delivered. Its extreme range—2 miles—does not differ materially from that of the caliber .30 rifle, the range for the one being 3,500 yards,

for the other a little over 4,000 yards. These latter ranges are far beyond the vision of a man for aimed firing at men, and would probably never be used. The effect of the bullet of the caliber .45 rifle is much more serious than that of the caliber .30.

The especial advantage of the magazine rifle is its reserve of five cartridges in the magazine, the very important advantage of its flatter trajectory, and the lighter weight of its ammunition, which enables the soldier to carry more cartridges. The most serious defect of the Springfield rifle during the war was the fact that at the origin nothing but charcoal powder could be furnished for it. As rapidly as possible this defect was overcome, and the manufacture of smokeless ammunition for the caliber .45 rifle was carried on extensively. The large reserve of Springfield rifles on hand will be supplied with smokeless-powder cartridges should their use become necessary in the future, a use which is not now anticipated. The arms, however, are being cleaned and repaired and made fit for service as rapidly as turned in.

Reports of officers who were in the Santiago campaign, as received by a special board which proceeded to Montauk Point to investigate the subject, confirm the excellence of the magazine rifle, caliber .30, in all respects. Notwithstanding rough usage, unusual exposure in a bad climate, which prevented the exercise of the usual care in preserving the arm, the breech mechanism is reported to have worked smoothly and well.

Investigations at different times during the last few years had led to the conclusion that there was in this country capacity for the manufacture of nearly all, if not all, the small-arm cartridges needed to meet the demands of any emergency. This expectation was realized and a greater amount of this ammunition was furnished than was needed—more than would have been needed had the war been protracted.

For many years the annual appropriations for infantry, cavalry, artillery, and horse equipments have been barely sufficient, with the utmost economy, to meet the annual consumption of the Regular Army. There was, therefore, only a small supply of them on hand at the commencement of the war. It has not been the plan of the Department to keep a very large supply of these equipments on hand, as they are subject to rapid deterioration. Instead of this it has been the plan of the Department to be prepared to manufacture a supply of the equipments as fast as armies could be raised, a portion of Rock Island Arsenal having been constructed for this purpose.

Although the buildings were available, the plant had not been installed, because of failure to procure appropriations therefor. Notwithstanding the delays encountered in getting ready for this manufacture, the Department made provision for meeting the call for equipments for the first call for troops as fast as they had been anticipated. As these troops were mainly from the National Guards of the different States, it was understood that they were well equipped, and the plans made for providing equipments were based on this supposition, which, however, was not realized. Various causes combined to increase the difficulties of meeting the demands for these equipments. Without any of these causes it is believed the Department could have been, in a month or six weeks, ahead of all requirements. The difficulties referred to above would indicate that the plan made of providing equipments for large armies raised suddenly in this country is feasible, and that in general they can be supplied as fast as troops can be raised, organized, drilled, and prepared to receive them. One of the greatest difficulties encountered was to meet the large demands for cartridge belts. The impossibility of meeting the sudden and great demand for these belts at one time caused the purchase of a limited number of inferior pattern for temporary use until others could be procured. On August 15, 1898, the output of belts of satisfactory pattern was 7,500 per day. From April 21 to August 31 the Department procured about 250,000 sets of infantry equipments, and about 26,000 sets of horse equipments.

At the outbreak of the war, as stated, the most urgent demand was for arrangements for coast defense. But little could be done to hasten deliveries of the larger

seacoast guns. Night shifts were employed, however, the force was largely increased, and the work pushed to the utmost.

It was practicable to accomplish more with regard to rapid-fire guns, and emergency orders were given for their purchase. Up to August 31 some 44 of these guns, with from 200 to 300 rounds of ammunition, were purchased and installed.

As a result of the efforts made by the Department there were delivered to the service, between April 1 and August 31, 1898, 102 seacoast carriages of all calibers.

When hostilities were apprehended the supply of powder and projectiles for seacoast guns was entirely inadequate, only about one-fifth of the supply required being on hand. Appropriations for seacoast ammunition for several years have been reduced to from one-third to one-half—in one case about one-tenth of the estimates. This, as is elsewhere stated, is due to the fact that, where appropriations had to be diminished, diminution was made in powder and projectiles rather than in guns and carriages, which take so much longer to procure. In anticipation of appropriations for the purpose of purchasing ammunition, measures were taken to procure a large supply. The powder and projectile manufacturers came to Washington and arranged to greatly increase their plants. It is evident, however, that it must be the policy of the Government to make appropriations sufficient for keeping up the supply of ammunition as rapidly as the guns can be mounted.

The plant for producing smokeless powder was so small at the outbreak of the war that it was necessary to procure all powders of any kind that could be manufactured. Thus for a time large quantities of cocoa and prismatic powders were obtained. As rapidly as possible, however, this production was diminished and that of smokeless powder increased.

No funds were available for enabling the Department to take any action for increasing field artillery for armies taking the field until April 21, 1898. With the guns and carriages on hand, the number of guns of the ten regular batteries was increased from four to six. They were also provided with the necessary harness. The four new batteries of the Sixth and Seventh Artillery were equipped with their guns, battery wagons, and harness. With the additional guns remaining on hand and those received from the States and the military schools, with the completion of caissons, carriages, harness, and implements, already in an advanced stage, the Department was able to equip sixteen volunteer batteries under the first call for troops early in the war, and was prepared to equip the remaining batteries as fast as they were ready to receive their equipment. Many of the batteries under the second call, however, were not equipped, the necessity therefor no longer existing. By August 20 the output of the Department in guns and carriages would have enabled it to arm and equip a four-gun battery every ten days.

Various depots were established to facilitate the equipment of troops. A large one was established at Tampa, Fla., for arming and equipping all organizations in that vicinity. Benicia Arsenal was used as a depot in the same manner for supplying the Philippine expedition. On the establishment of the camp at Chickamauga it was proposed to establish a depot at that point, but on conference with the Commanding General the plan of supplying troops from Columbia Arsenal was adopted. The distance of this depot from the camp, the congestion of lines of transportation, the difficulty of distributing supplies promptly and correctly, and the necessity for giving precedence for supplies for Tampa caused delays in equipping the troops at Chickamauga. Depots were established at Camp Alger, at Jacksonville, smaller depots at Atlanta, Mobile, and other points. Depots under charge of ordnance officers were also established at Santiago de Cuba and at Ponce, Porto Rico, after the occupation of these places by the United States troops. A detailed account of the very extensive issues of equipments is given in the report of the Chief of Ordnance.

The different arsenals were worked to their full capacity wherever it was practicable to obtain material and the necessary number of employees. Articles obtained by purchase, especially where haste was necessary, were often inferior, both in material and workmanship, to those produced at the arsenals, a fact generally

acknowledged by contractors who examined the work. Contract stores are therefore not only expensive, but will have to be replaced sooner than those made at arsenals.

At Springfield Arsenal there were manufactured up to June 30, 1898, some 30,000 magazine rifles, 12,000 magazine carbines, an output of about 11,000 more than during the last fiscal year, but this does not show the large increase incident to the war. The maximum was not reached until August 13, when about 370 per day, or over 100,000 per year, were being manufactured. The average daily output before March 15 was about 120. This output was gradually increased to the maximum by working double shifts of men and putting them on as rapidly as was practicable. The utmost output at Springfield with the present plant would not exceed about 500 per day. This emphasizes the necessity for increasing this plant, and also establishing the plant at Rock Island Arsenal previously referred to.

The lack of sufficient capacity at Frankford Arsenal to meet the demands of the war was seriously felt. Considerable increase is now being made to the plant. The output of caliber .30 smokeless cartridges was increased from 48,000 to 180,000 per day. Of course a large amount of smokeless ammunition for this gun was purchased from private manufacturers.

The total number of seacoast guns and mortars procured from all sources up to the present time has been about 486.

The Department placed under manufacture, partly at the gun factory and partly by contract, 45 rapid-fire guns, and is now preparing to early contract for 93 rapid-fire guns, and these guns will be completed during the coming year. These, with others previously ordered, will give a total number of 336 rapid-fire guns, all of which will use smokeless powder.

The number of seacoast carriages of all patterns contracted for or ordered since October 1, 1897, is 203. The number of rapid-fire carriages of all calibers for the same period is 254. The total number of rapid-fire guns, seacoast guns, and mortars estimated to be mounted by September 30, 1898, is 447.

The 12-inch disappearing gun carriage, reported last year as the most important gun-carriage work of the year, has been completed, and it was found that the time required for firing ten rounds was sixteen minutes fifty-seven and one-half seconds, or an average of one round every one and two-thirds minutes. Considering that the amount of ammunition handled for the ten rounds was about 14,500 pounds, the rate of fire mentioned is a strong testimonial to the excellence of the results obtained. These carriages can be traversed in a complete circle by four men in two minutes, the weight being about 442,000 pounds moved through the angle.

In connection with the rapid firing to be obtained from seacoast carriages, it is believed that an arrangement can be made by which the 8-inch disappearing carriage can be elevated, traversed, and fired by one man, and steps have been taken to have such an arrangement placed on one carriage for trial.

Experiments are being made with two 3-inch field guns, one of which will be made from a single forging and the other built up in the usual manner. The first is about completed. The carriage will be of the nonrecoil type, with a suitable arrangement for a certain amount of lateral traverse, and with a spade to maintain it in a comparatively fixed position. Many minor improvements are being tried with this carriage, such as an improved brake and an improved nave box, which will protect the axles from dust and also preserve the lubricant.

A considerable amount of charcoal powder for seacoast guns had to be obtained for war supply and in order to increase the rate of supply, as there was not sufficient powder of any kind on hand at the outbreak of hostilities; but when it became apparent that there was no danger of attack to be apprehended on the seacoast, orders for this kind of powder were brought to a close.

A suitable formula for smokeless powder has been obtained for cannon of all calibers, and orders were given for its manufacture in large quantities in anticipation of hostilities. It took some time to increase the plant to the necessary magni-

tude, and therefore a large quantity of charcoal powder, as stated, had to be secured.

A satisfactory powder for the .45-caliber rifle had been determined upon, but, for reasons to be stated, was not available at first.

In February the manufacturers were given orders to work on smokeless powder to their full capacity. Under these orders, with the charcoal powder obtained, the amount on hand brought the supply up to a reasonably safe point. The first issues of powder for field and siege guns were made from charcoal powder on hand; but before the end of May the supply of smokeless powder was ready, and this was issued thereafter.

At the outbreak of hostilities the demand for smokeless powder for the .30-caliber rifle was so great as to preclude the diversion of any of it for the .45-caliber Springfield until a sufficient increase of plant could be made to meet the demand for both rifles. Accidents at the powder works crippled for a time their output and delayed the installation of new machinery. As soon as the increase of plant permitted, that for the .45-caliber was begun, and it replaced the black powder in the manufacture of these cartridges. Though the supply of smokeless powder for the .30-caliber was at one time rendered precarious by accident, yet it was always equal to the demand.

The supply of seacoast ammunition on hand was insufficient, as stated; but previous to the outbreak of hostilities arrangements were made to supply by June 30 about eighteen projectiles per gun for 8-inch guns, twenty-three for 10-inch guns, eighty for 12-inch guns, and about thirteen for steel mortars.

The supply of powder fairly kept pace with the supply of projectiles.

The number of companies that can manufacture armor-piercing and deck-piercing projectiles is limited, so that orders should be given to have a sufficient number of these on hand at all times.

One hundred range finders, permanent type, and 100 for secondary stations were procured. They were installed as rapidly as turned out by the manufacturers while the war was in progress. This led to some errors in the location of the instruments and in their adjustment, a matter that is being rapidly corrected at the present time.

Very respectfully,

D. W. FLAGLER,

Brigadier-General, Chief of Ordnance.

The SECRETARY OF WAR.

Statement showing amount of funds furnished the Ordnance Department, United States Army, for armament of fortifications.

For—	Amount appropriated by Congress to November 10, 1898.	Amount allotted by the President from "National defense."	Total appropriated and allotted.	Amount required to complete the project for seacoast defense (exclusive of ammunition).
Seacoast guns, mortars, gun carriages, mortar carriages, ammunition, etc	\$24,789,903.00	\$7,085,035.38	\$31,874,938.38	\$28,369,707.00
Army Gun Factory plant	2,251,587.00	.....	2,251,587.00	.....
Gun-carriage plant	431,750.00	.....	431,750.00	.....
Total	27,473,240.00	7,085,035.38	34,558,275.38	28,369,707.00

The supply of powder was a most troublesome question at the outbreak of the war. There are only two establishments in this country which manufacture smokeless powder, and they own patents upon the process. These, however, like all other companies called to aid the

Government, responded with alacrity, ran their works day and night, and produced in a short time an ample supply. The same can be said for all manufacturers of tents, clothing, all kinds of guns, cartridges, and other war material, and but for their most energetic exertions we would have been sadly deficient.

The Krag-Jorgensen, or a similar .30-caliber magazine gun, should be manufactured until we have at an early date at least 500,000 stand of those arms in our arsenals, and an ample supply of ammunition for the same. The sea-coast defense should also be brought to completion without delay, so that hereafter no emergency will find us unprepared to meet it.

In this connection attention is called to the difference in the caliber both of the heavy guns and small arms in the Army and Navy. In my judgment they should be alike in both branches of the service, to enable either branch to supply the other with ammunition. The reasons for this are too patent to need elaboration.

SIGNAL SERVICE.

WAR DEPARTMENT, SIGNAL OFFICE,
Washington, October 24, 1898.

SIR: I have the honor to submit the following summary of the essential points of my annual report:

MILITARY TELEGRAPH CABLES.

The necessities of war enlarged the operations of the Signal Corps more than those of any other part of the Army, increasing the corps twentyfold—from an aggregate of 60 to 1,300. The insistent demands for electrical communication left no leisure to the Signal Corps, whose active operations have extended to the Philippines, Porto Rico, and Cuba. Armies in the field, equally with the great military camps of the United States, have never waited for their individual system of electrical intercommunication.

The national policy that left electrical communications of the Army to a corps of 10 officers and 50 men likewise restricted its appropriations, so that less than \$1,000 was available at the beginning of the war, and not exceeding two men were stationed at any single place. The supplementary system of details in the line broke down absolutely, as the Chief Signal Officer has repeatedly pointed out it always has in past campaigns.

The important work of the Signal Corps waited for allotments from the national defense and the authority of Congress for a volunteer corps, both of which came so late as to threaten serious deficiencies in the operations of the corps, but fortunately the high professional standing and ability of the regular officers appointed to the highest grades, reenforced by the practical skill and knowledge of the regular sergeants promoted to second lieutenants, made the untrained material valuable in a wonderfully short time, a result that depended very largely on the intelligence and skill of the volunteers of the Signal Corps.

The first important work was a system of military telegraph cables between the adjacent forts in the neighborhood of important cities, thus perfecting the electrical intercommunications that the Chief Signal Officer had urged unavailingly on Congress for the past six years. Cables have been laid near Boston, New York, Philadelphia, Washington, Newport, R. I., Charleston, New Orleans, and are on the ground for San Francisco.

ELECTRICAL INSTALLATION AT ARMY POSTS.

On the approach of the war the electrical installations for the fire-control system, an absolutely necessary adjunct of disappearing guns, developed an important duty on the Signal Corps, which has promptly carried out the plan. Electrical communications between the range, control, and firing officers have been provided for every battery established, and such instruments furnished as have been indicated to the Chief Signal Officer. In connection with this work the Signal Corps has performed any duties connected with electrical work at artillery posts, temporary camps, or elsewhere demanded by public interest.

PROPOSED HAVANA CAMPAIGN.

With the assembly of an army in Florida, the Chief Signal Officer brought together every available signal corps man, and supplemented them by details from the line. The promotion of sergeants left only 30 skilled signal men, and the enlargement in time of war of this corps necessarily produced an organization far below the high standing set for the regular establishment. Herculean efforts on the part of the officers supplemented the lack of time, and the adaptability of the American soldier contributed its share, so that the work of the corps was satisfactory, though, doubtless in some instances its efficiency could have been increased.

MANILA CAMPAIGN.

The organization of a force for operations in the Philippines, necessitated the withdrawal of officers and men from Florida. As the Pacific coast had been stripped of men and available material, the work of the organization was hampered. The corps was, however, able to furnish Lieut. Col. Richard E. Thompson and Maj. George P. Scriven, both Spanish speaking officers, with an effective force suitably equipped by a lavish expenditure of money and energy. Official reports indicate that Lieutenant-Colonel Thompson and his command have justified the confidence imposed in them, and in addition to the efficient discharge of ordinary duties, have contributed their share to the luster gained by the American arms in the far East. The war cable was laid in the harbor, and at a suitable time the English cable to Hong-kong repaired. Telephonic and telegraphic connections were maintained in garrison and field, and the Signal Corps carried its lines into advanced trenches, repaired them under fire, and in the final assault ran a flying line up the open beach and established an advance station. In addition, a signal detachment led the army with signal flags displayed so that the fire of the navy would fall in advance of the army, and displayed these flags as the first emblems of the United States in the enemy's forts. The gallantry and efficiency of Lieutenant-Colonel Thompson and officers and men of the Signal Corps have attracted the attention of the commanding general of the Philippines expedition, and have received notice at the hands of the President.

VOLUNTEER SIGNAL CORPS.

As the regular corps could not furnish even one officer to each authorized army corps, Congress authorized a volunteer Signal Corps for 21 divisions, but only 17 divisions were provided for. The principle on which this corps was organized determined its subsequent efficiency in the field. Congress restricted two-thirds of the appointments to skilled electricians and operators, and both the President and Secretary of War supported the desires of the Chief Signal Officer to make it a corps d'élite. The regular officers, selected originally by competition, filled the field positions. They were without exception in the prime of life, thoroughly skilled in specialties, admirably fitted for administrative duties, and so capable of arduous campaigning that not a single officer was invalided during the war, whether at Santiago, Porto Rico, or Manila. Subordinates were procured from lieutenantancies in

the regular line, from graduates of West Point in civil life, from trained sergeants of the Signal Corps, and most of the others were selected from men trained in electrical pursuits, with especial ability necessary to success. Time failed for examination and the appointments were made by selection. The corps was not only organized in thirty days, but one company was put in the field before Santiago de Cuba. Almost without exception the officers proved efficient, and the enlisted men challenged any other corps to produce their equals.

SANTIAGO DE CUBA CAMPAIGN.

The work in connection with this campaign consisted, first, of electrical communications between the War Department and Santiago de Cuba; second, signal work proper, and third, war ballooning.

The establishment of electrical communications with the Fifth Army Corps at Santiago was an extremely important and difficult piece of work, which was fortunately facilitated by the previous requests of Major-General Miles that the Chief Signal Officer should arrange similar communications for the Havana campaign. Under the personal direction of the Chief Signal Officer, the field work was done by Col. James Allen, whose executive and administrative efforts, both while acting under the orders of the Chief Signal Officer, and also while acting independently in the field, were characterized by an energy, skill, and intelligence that marks him as an officer of no mean ability. Cables had to be manufactured to order, steamer chartered, cable gear obtained, and the Chief Signal Officer opened negotiations with commercial telegraph companies whereby the whole system would be harmonious. As a result of two months' labor, the Signal Corps opened a station at Cainanera, Guantanamo Bay, June 20, a day in advance of the landing of General Shafter's army, and within five minutes telegraphically of the Executive Mansion and War Department. Later, Colonel Allen furnished General Shafter's army with material for field telegraphs to replace those left at Tampa, repaired the French cable, and later, laying a signal-corps cable, opened up communication with General Shafter's headquarters, placing it within twenty minutes of the War Department. The discouragements, difficulties, and hardships involved in this work were such as to make its successful completion a source of congratulation to every American.

Prior to the establishment of this system of electrical communication, Colonel Allen had been engaged in destroying the enemy's cables off Santiago, with a chartered ship only partially equipped and working within range of the enemies batteries. Two cables were raised and broken or cut—one from a depth of 5,000 feet and the other in a depth exceeding 6,000—under conditions that make this a notable achievement, which was possible only by the unremitting zeal and persistency of Colonel Allen and his subordinates. Off Santiago all cables except one leading from Cuba were interrupted, the work being continued until the bombardment of the forts. The cable steamer was then so exposed to the enemy's fire that the captain and crew refused to longer navigate the vessel, the work of cable cutting being done by Colonel Allen's military force. Brevets have been recommended for Colonel Allen and Capt. M. L. Hellings for this work under the fire of the enemy.

TELEGRAPH AND SIGNAL WORK AT SANTIAGO.

These operations were under Lieut. Col. Frank Greene, Chief Signal Officer Fifth Army Corps, who worked under the disadvantages involved under orders to leave the field telegraph section at Tampa. The successful installation and operation of telephone and telegraph lines between the headquarters of the commanding general and his subordinate commanders and supply depot, as well as cable to Washington, depended primarily on material supplied by Colonel Allen, independent of the Fifth Corps, which had been provided by the Chief Signal Officer of the Army, who foresaw the absolute necessity of telegraphic facilities in such a country. Telephone lines were constructed as rapidly as the commanding general advanced, and

the lines were operated continuously and successfully in range of the fire of the enemy and all other adverse conditions, and ultimately the lines extended along the whole front of the army, stations being maintained in trenches within 400 yards of the enemy's lines.

MILITARY BALLOONING.

Lack of funds made it impossible for the Signal Corps to supply in time new balloons, and the balloon in the Santiago campaign was one made by the Signal Corps with most limited accessories. The balloon party landed June 28, and three ascensions were made, on June 30, under Colonel Maxfield's directions, at suitable points without range of the enemy's fire, which resulted in increased knowledge as to the direction and course of such roads and streams as had remained undiscovered during the previous week.

The ascent of July 2 was made at a point designated by the chief engineer officer, Fifth Army Corps, Lieutenant-Colonel Derby.

The utility of the balloon was then demonstrated, and as Brigadier-General Kent, in his official report, says:

"Lieutenant-Colonel Derby, of General Shafter's staff, met me about this time and informed me that a trail or narrow way had been discovered from the balloon a short distance back, leading to the left to a ford lower down the stream."

This discovery relieved the congested conditions of the main road and allowed the speedy delivery of troops of this brigade in their proper place.

TELEGRAPH CENSORSHIP.

A most responsible as well as a most delicate duty of the Chief Signal Officer was the exercising, not of press censorship, but of telegraph censorship, principally over the cables whose operations are conducted on American soil.

Thanks are due to the officials of the Western Union Telegraph Company, the Commercial Telegraph Company, the United States and Hayti Cable Company, the French Telegraphic Cables Company, the Mexican Telegraph Company, the Direct Cable Company, and the Anglo-American Cable Company for the loyal spirit displayed by their presidents and prominent officials and for their hearty cooperation in many emergencies. Cipher dispatches were forbidden to the West Indies and any messages in plain text which conveyed important information concerning military operations or such as were detrimental to the interests of the country. The Associated Press and Sun Press Association and the great daily journals of the country not only held up the hands of the Chief Signal Officer in this duty, but also refrained at critical times from publishing information detrimental to the public interests. All messages to or from the West Indies were carefully supervised. Through the Signal Corps censorship a rich harvest of information was reaped from the telegrams of newspaper correspondents, blockade runners, merchants, personal dispatches, etc.

While hundreds of improper messages were quietly deposited in the wastebasket, others were allowed to pass freely as leading up to other and more valuable information. Thus was gained information as to operations of blockade runners, the activity of Spanish agents, and the movements of Spanish ships. The most valuable service rendered by the Signal Corps was the announcement to the President and the Secretary of the Navy on May 19 that Admiral Cervera's squadron had that very day entered the harbor of Santiago, information due to the extraordinary activity and intelligence of Colonel Allen, of the Signal Corps. Fortunately for the country the President and Secretary of the Navy were both alive to the situation, and, acting on the reports and representations made to them by the Chief Signal Officer, gave orders the very next day that led to the blockading of Santiago and the ultimate destruction of Cervera's squadron. As has been officially said by Secretary Long, all military and naval movements depended upon the locating of

the regular line, from graduates of West Point in civil life, from trained sergeants of the Signal Corps, and most of the others were selected from men trained in electrical pursuits, with especial ability necessary to success. Time failed for examination and the appointments were made by selection. The corps was not only organized in thirty days, but one company was put in the field before Santiago de Cuba. Almost without exception the officers proved efficient, and the enlisted men challenged any other corps to produce their equals.

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this fleet, and on this information was based the plan of the Santiago campaign, which ended the war.

It is an interesting anticlimax that Colonel Allen also reported to the Chief Signal Officer the destruction of Cervera's fleet, and this information was conveyed to the President fourteen hours in advance of other official advice.

PORTO RICAN CAMPAIGN.

The work of the Signal Corps in this campaign affords a beautiful example of the rapidity and efficiency with which electrical communications can be established and maintained between military posts and advancing armies when the commanding general of such armies takes proper equipments. Colonel Allen, in general charge of the Signal Corps work, added to his laurels gained in the Cuban campaign, and the efficient services rendered by Lieut. Col. Samuel Reber and William A. Glassford kept in direct communication the commanding general, Major-General Miles, with every advance command with which speedy communication was desired. As a consequence, the peace protocol reached the outposts of Generals Brooke, Wilson, and Henry within thirty-three minutes of the time it was received at Ponce, and thus prevented battles at two points where the troops were moving out. Such was the activity of the Signal Corps that at the date of the peace protocol it was operating 170 miles of line, covering nearly one-half of Porto Rico, and more than 200 messages were handled daily at Ponce alone.

FLYING-TELEGRAPH LINES.

At every large camp within the limits of the United States has been established an independent system of either or both telegraph or telephone lines whereby commanders have direct communication with subordinate headquarters, quartermasters, hospitals, etc. Similar facilities have been arranged for the great military hospitals. In these operations more than 250 miles of line have been built and operated. It is gratifying to report that the flying-telegraph system has stood successfully the test of camp service and field campaigning.

TELEGRAPH LINES OF CUBA AND PORTO RICO.

As these lines belonged to Spain, their ultimate disposition is a matter which rests on future legislation. At present, however, these lines are under the administration of the Signal Corps of the Army. Such reconstructions and repairs are being made of Cuban lines as are necessary for military administration. The question of connecting Porto Rico with Cuba by cable is worthy of attention. A cable could be laid from Porto Rico to Mayaguez for about \$600,000, and for \$50,000 the lines between Santiago de Cuba and Havana could be put in first-class condition. This would bring Cuba and Porto Rico in communication with the lines of the International Ocean Telegraph Company, an American corporation operating cables to Florida.

OFFICE OF THE CHIEF SIGNAL OFFICER.

This office, undermanned at the beginning of the war, has been subjected to a tremendous strain in doing its work. The necessity of providing a proper permanent clerical force should receive prompt and favorable action of Congress.

APPROPRIATIONS AND ESTIMATES.

Several years since the appropriations for the Signal Corps were reduced from \$22,000 to \$18,000, this seriously crippling the service. Out of the very liberal appropriations made by Congress for war purposes there will remain nearly \$200,000. Reasonable appropriations in times of peace are however far more efficient for public purposes than the most lavish in times of war.

REGULAR SIGNAL CORPS.

The necessity of reorganizing and enlarging the Signal Corps of the Army is beyond question. The regular Signal Corps now consists of 1 brigadier-general, 1 colonel, 1 lieutenant-colonel, 1 major, 5 captains, 1 first lieutenant, and 50 sergeants. It should be increased by 1 colonel, 1 lieutenant-colonel, 2 majors, 5 captains, 9 first lieutenants, 40 first-class sergeants, 50 corporals, 250 first-class privates, and 50 second-class privates. Original vacancies should be filled from officers who have served in the war, and no officer should be appointed until he has been approved by a Signal Corps board as to his physical, moral, and mental qualifications. The high standing of the regular officers has insured during the present war the efficiency of the corps, and its future can only be assured by similar restrictive methods, which should insure the highest order of ability in the Army.

THE LIBRARY AND WAR DEPARTMENT DOCUMENTS.

The library has proved of great utility to the Army, although the demands upon it have been necessarily intermittent during the war. The librarian should receive a salary of \$1,600 and have two assistants, the present system of detailing temporary clerks being more expensive and less efficient than would a regular assignment.

Action was taken by the Chief Signal Officer to insure the printing and distribution of such military works to the Volunteer Army as are indispensable for instruction and drill. More than 100,000 copies of such publications, for the use of the Volunteer Army and National Guard, have been printed and distributed.

Congressional legislation is recommended so that the National Guard may be permitted to purchase military publications, such as Army Regulations, Infantry Tactics, and the Service Manuals.

A. W. GREELY,

Brigadier-General, Chief Signal Officer of the Army.

The SECRETARY OF WAR.

The skill and perseverance displayed by the Signal Corps are worthy of commendation, and the excellent work performed is duly recognized.

The recommendations of the Chief Signal Officer are commended to the favorable consideration of Congress.

RECORD AND PENSION OFFICE.

RECORD AND PENSION OFFICE, WAR DEPARTMENT,

Washington City, October 20, 1898.

SIR: In compliance with your instructions, I have the honor to submit the following summary of my annual report, dated the 1st instant:

During the fiscal year ended June 30, 1898, as in former years since the organization of the Record and Pension Office, the public business was promptly dispatched, more than 95 per cent of all cases received having been disposed of within twenty-four hours from the time they reached the office, and at the close of business hours on the last day of the fiscal year not one case remained unacted upon.

One hundred and ninety-three thousand two hundred and ninety-six cases were received during the fiscal year, being a large increase over the receipts for the preceding fiscal year, showing a corresponding increase in the current business of the office. This increase is distributed among all classes of cases with which the office has to deal, including applications for "remuster" under the act of February 24, 1897, calls from the Commissioner of Pensions and the Auditor for the War Department for the military histories of former officers and enlisted men, desertion cases, and the general correspondence of the office.

The "remuster" cases arise under the act of Congress approved February 24, 1897, "to provide for the relief of certain officers and enlisted men of the volunteer forces" in service during the war of the rebellion. This act was adopted as a substitute for the similar act of June 3, 1884, and the acts amendatory thereof, which expired by limitation June 3, 1895. The old law provided for payment for services rendered as commissioned officers by persons who were not recognized by their muster into service as of the grades to which commissioned at or for the time the service was performed, and it also gave to its beneficiaries a pensionable status. The new law confers the same material benefits, and, in addition, recognizes the persons to whom it is applied as having been in the United States military service in the grades to which they were commissioned from the dates upon which they entered upon duty, under the conditions specified in the law, or otherwise fulfilled the requirements of the law.

During the fiscal year 5,038 applications were received for removal of the charge of desertion under the provisions of the act of Congress approved March 2, 1889, and the acts amendatory thereof. These applications, however, do not include the cases in which the charge of desertion was incidentally encountered and considered under the law without a formal application therefor. This latter class of cases exceeded the former class in number, the incidental cases having numbered 7,897, making a total of 12,935 cases adjudicated during the fiscal year under the provisions of the act referred to.

By an act approved January 26, 1897, "for the relief of telegraph operators who served in the war of the rebellion," the Secretary of War was "authorized and directed to prepare a roll of all persons who served not less than ninety days in the operation of military telegraph lines during the late civil war, and to issue to each, upon application, unless it appears that his service was not creditably performed, or to the representatives of those who are dead, suitable certificates of honorable service in the military telegraph corps of the Army of the United States." * * * It was provided in the enactment that it should not be construed to entitle its beneficiaries to "any pay, pension, bounty, or rights not herein specifically provided for."

By direction of the Secretary of War the Record and Pension Office was charged with the preparation of the certificates provided for by the law, and with their transmission to the persons entitled thereto, as well as with all correspondence or other details in connection with the subject. One hundred and twenty-eight certificates were issued up to the end of the fiscal year.

The work of reproducing the individual military and medical records of the officers and enlisted men of the volunteer forces by the index record-card system has been prosecuted with all of the clerical force available for the purpose, and such progress has been made as the nature of the records would permit. The great mass of the volunteer records of all wars in which the country has been engaged (except those of the recent war with Spain, which have not yet been filed in this office) have been carded, and the work during the past year has been generally confined to records of a miscellaneous character, difficult of reproduction, and the transcription of which is necessarily slow, but which it is important should be included in the general system of index-record cards.

The index-record card work for the fiscal year included the preparation of 637,633 military cards (479,811 of this number were a consolidation of 2,898,781 cards made from monthly returns) and 9,067 medical cards, making, with the number prepared in prior years, a total of 40,215,914 of the former and 6,970,663 of the latter class, aggregating 47,186,577 index-record cards prepared up to and including June 30, 1898.

One object of the transfer of the records of the Revolutionary War and the War of 1812 to the War Department, as announced in the act approved August 18, 1894, providing for their transfer, was that they should be "prepared for publication." Congress will doubtless make the necessary appropriation for the publication of these records at the proper time, but it is clearly not advisable to undertake the

publication of any portion of them, especially of those relating to the individual histories of officers and enlisted men, until the compilation shall have been completed and every available source of information shall have been exhausted. In view of the difficulties encountered and the consequent slow progress of the work of compilation, the date of the contemplated publication is necessarily uncertain and can not even be approximated with any degree of accuracy, but it is evident that the date of publication is still somewhat remote.

It is due to the employees of this office to state that the prompt and satisfactory dispatch of the business of the office is the natural result of the commendable industry, faithfulness, and zeal which they display in the performance of their respective duties.

Very respectfully,

F. C. AINSWORTH,

Colonel, United States Army, Chief Record and Pension Office.

The SECRETARY OF WAR.

HALL OF RECORDS.

Section 8 of the act "to provide for temporarily increasing the military establishment of the United States in time of war, and for other purposes," approved April 22, 1898, provides:

That all returns and muster rolls of organizations of the Volunteer Army and of militia organizations while in the service of the United States shall be rendered to the Adjutant-General of the Army, and upon the disbandment of such organizations the records pertaining to them shall be transferred to and filed in the Record and Pension Office of the War Department. And regimental and all other medical officers serving with volunteer troops in the field or elsewhere shall keep a daily record of all soldiers reported sick or wounded, as shown by the morning calls or reports, and shall deposit such reports with other reports provided for in this section with the Record and Pension Office as provided herein for other reports, returns, and muster rolls.

As indicated in the above-quoted law, there will soon be a large increase in the records and files of this Department, and the need for additional office room is very urgent. Immediate provision to meet the needs of the Department is necessary, and in this connection the statement on this subject contained in my last annual report is repeated:

The departments are crowded with files of official papers to the detriment of the working force and the serious inconvenience of the public business. Costly public buildings erected for office purposes should not be used for storage. The files not in current use should be stored elsewhere. A hall of records becomes more and more necessary each year.

The superintendent of the State, War, and Navy Department building, in his report for 1896, submitted the following remarks on this subject:

The accumulation of records in this building not only displaces space needed by clerks, but adds considerable weight upon the floors. Some of these records are rarely referred to, while others may be frequently called for. All are too valuable to be destroyed. The corridors of the State Department are stacked with records, not only in a comparatively exposed place, but obstructing the corridor. The log-books and other records of the Navy Department, most of which have only a historic value, have already filled the space allotted and are still accumulating.

The records of the War Department are quite as bulky as those above mentioned. From the report of the Quartermaster-General for 1880, I quote the following:

"The papers relating to the claims filed in this office are very bulky and are valuable. They contain the evidence for and against claims reported above as amounting, on 1st of July last, to 12,778 miscellaneous claims and accounts, \$6,947,000, and 11,876 claims under act of 4th of July, 1864, \$5,960,172.55.

"A fireproof storehouse of simple and cheap construction could be built on some place convenient to the executive offices for about \$200,000, which would afford perfectly safe and convenient storage for such of these papers as have been finally disposed of, and for such others as are seldom consulted. Telegraphic or telephonic communications with the superintendent would bring to every office in a few minutes any paper needed for reference."

It will be observed that the remarks quoted contemplate the erection of a building, and while this is necessary to secure a suitable fireproof structure, the contingency mentioned will be a reality before a building can be erected, and therefore it will be necessary, for the present, to rent the most suitable building that can be obtained. The Lemon Building, on New York avenue, between Seventeenth and Eighteenth streets, has been rented for \$6,000 per annum. The building is five stories, with windows on all sides, and well adapted for office purposes, but not fireproof. It is, however, completely occupied by several of the bureaus of the Department, and more room will soon be needed for the records of the Volunteer Army.

WAR RECORDS OFFICE.

WAR DEPARTMENT, WAR RECORDS OFFICE,
Washington, October 1, 1898.

SIR: I have the honor to submit the following summary of the annual report of the Board of Publication of the Official Records of the War of the Rebellion:

The publication was carried forward; six books were published and four put in type during the fiscal year. Series I is now completed, save two volumes reserved for future supplemental matter.

The office has received 108,357 books and 60,000 atlas plates during the year. Of these all the plates and 99,727 books were distributed, leaving an increase of 8,630 in the number stored in the War Department unclaimed, amounting now to 67,506 books and 105,015 plates of the atlas. A general distribution of these books and plates can only be made by authority of Congress, and it is respectfully recommended that such authority be requested.

There was appropriated for the service of the last fiscal year, \$145,380, of which was expended \$127,291.05, leaving a balance of \$18,088.95, against which there are outstanding obligations estimated at \$10,147.84.

The appropriation for the current year is \$94,080.

There are now 22 civilian employees on the rolls of this office—less than one-third of the number given in the last annual report; and this reduction has been accomplished without material decrease in the capacity of the office.

Respectfully,

F. C. AINSWORTH,
Colonel, United States Army, President of the Board of Publication.

THE SECRETARY OF WAR.

The recommendation of the president of the Board of Publication of the Official Records of the War of the Rebellion is concurred in, that

Congress authorize a distribution of the volumes of this publication and the plates of the atlas now stored away, and occupying space needed for other purposes.

THE BATTLEFIELD COMMISSIONS.

WAR DEPARTMENT,
GETTYSBURG NATIONAL MILITARY PARK,
Gettysburg, Pa., October 24, 1898.

SIR: The Gettysburg National Park Commission respectfully submit the following summary of their work at Gettysburg, with suggestions for its successful prosecution and completion:

Crawford avenue has been completed, leading northward from Devil's Den through the Valley of Death and across Plum Run to the Wheatfield road. The bridge over Plum Run was constructed in the same substantial style as the others which have been built on this field.

The Commission having heretofore given attention to the avenues of the park on the Second and Third Days' field have thought it proper this year to look after those on the First Day's, and have entered into contracts for the construction of Reynolds and Howard avenues, which mark the lines respectively of the First and the Eleventh Corps of the Union Army and are together nearly 3 miles long. Howard avenue is finished. It leads from the Harrisburg road near Rock Creek westward by Barlow's Knoll to the Mummasburg road, is 20 feet wide, and constructed on the Telford plan in the best manner. Reynolds avenue is in two sections. Section 1 is about completed, and section 2 will be finished early next spring.

A number of other avenues mentioned in previous reports are urgently needed to render accessible important parts of this battlefield. The Commissioners would have pushed them this year but for the lack of adequate means. Among them are the avenues on the Cavalry field and the road leading there.

The Commission long since constructed Telford avenues along the Confederate battle line of the second and third days' fight on Seminary Ridge, on each extreme of said line, the left of Hill's corps and the right of Longstreet's, aggregating over 3 miles in length. Between these two parts of Confederate avenue there is a gap of 2 miles along the left of Longstreet's corps and the right of Hill's, across which the Commission have been very anxious to construct the link needed to connect the two extremities aforesaid, and thus complete the Confederate avenue from the Chambersburg pike, northwest of the town, southward and eastward to Round Top, a distance of 5 miles.

No part of this battlefield is more interesting than the part covered by that gap in the Confederate avenue. Not only did important movements of the second day's battle originate there, but it was there the Confederate column of the third day under Longstreet was formed and began its advance on that final charge led by Pickett, so sublime in its daring and so tragic in its fate.

There is no part of this battlefield so inaccessible as this. Encumbered by bushes and briars and cross fences, with not even an open footpath over it, visitors here never see this ground.

The Commission have not constructed this avenue because the Government does not own the land, and the owners ask exorbitant prices which the Secretary of War and the Commission do not feel justified in paying. Most of it is owned by a land company, and the price they ask is \$500 an acre, or \$400 per acre if the Government will buy their entire holdings of 1,000 acres or more, either of which prices is more than ten times its market value. More than two years ago the Secretary of War instructed the Commission to begin proceedings in the circuit court to condemn the lands needed for said avenue, together with some adjacent woodlands which it was important to preserve, the area being 105 acres, and the said proceedings were

begun at once and are still pending. A jury of view was appointed, inspected the lands, heard the testimony offered on both sides, and made an award that was liberal to the respondents, ranging from \$48 to \$200 per acre, but they appealed to the court in term at Philadelphia, and have since resorted to vexatious delays and continuances, so that the case is still pending and undetermined. Thus this important part of the Confederate lines is prevented from being opened and the military positions on it fixed and marked as intended by the Government.

The Commission wish to emphasize the fact that the main hindrance to marking Confederate lines and positions, not only on the grounds just above spoken of, but on almost all of this field—as was the intention of Congress in establishing the Gettysburg National Park—is that the lands whereon said lines and positions are situated are not yet owned by the United States. Prompt action by the courts in condemning the needed lands when held at exorbitant prices, and liberal appropriations by Congress for the purchase of lands which can be bought at reasonable rates, are the two main requisites for the realization of the patriotic purposes of the Government with reference to this battlefield.

The positions of the United States regular troops in this battle, consisting of 11 regiments of infantry, 4 regiments of cavalry, and 22 batteries of artillery, have been accurately located, and are carefully noted on the maps and on the ground by markers, so that when the Government shall take steps to erect monuments to these troops, which their gallant services here entitle them to, there will be no difficulty in placing them.

Handsome and durable iron tablets with appropriate inscriptions are erected on substantial iron pillars designating and briefly describing the services rendered by each of the following Confederate batteries, the respective positions of which have been marked for some time by mounted guns of like caliber as those of which each battery was composed, viz:

Taylor's Virginia Battery, Woolfolk's Ashland (Va.) Artillery, Parker's Virginia Battery, and Jordan's Bedford (Va.) Artillery, of Alexander's Battalion. Manly's North Carolina Artillery, Fraser's Pulaski (Ga.) Artillery, McCarthy's First Richmond Howitzers, and Carlton's Troop (Ga.) Artillery, of Cabell's Battalion. Bachman's German (S. C.) Artillery, Garden's Palmetto (S. C.) Light Artillery, Latham's Branch (N. C.) Artillery, and Reilly's Rowan (N. C.) Artillery, of Henry's Battalion. Johnson's Virginia Battery, Rice's Danville (Va.) Artillery, Hurt's Hardaway (Ala.) Artillery, and Wallace's Second Rockbridge (Va.) Artillery, of McIntosh's Battalion. Cunningham's Powhatan (Va.) Artillery, Watson's Second Richmond Howitzers, and Smith's Third Richmond Howitzers, of Dance's Battalion.

The above are all the Confederate batteries which occupied positions on ground of which the title has yet been acquired by the Government.

Inscriptions are prepared and tablets of iron similar to those mentioned above will shortly be erected to designate the positions and briefly describe the evolutions and achievements of the following Confederate infantry commands, viz:

Kershaw's Brigade of McLaws's Division, and with its Second, Third, Seventh, Eighth, and Fifteenth South Carolina and Third South Carolina Battalion; Semmes's Brigade of McLaws's Division, with its Tenth, Fiftieth, Fifty-first, and Fifty-third Georgia regiments; Anderson's Brigade of Hood's Division, with its Seventh, Eighth, Ninth, Eleventh, and Fifty-ninth Georgia regiments; Benning's Brigade of Hood's Division, with its Second, Fifteenth, Seventeenth, and Twentieth Georgia regiments; Robertson's Brigade of Hood's Division, with its First, Fourth, and Fifth Texas and Third Arkansas regiments; Law's Brigade of Hood's Division, with its Fourth, Fifteenth, Forty-fourth, Forty-seventh, and Forty-eighth Alabama regiments.

The method of marking the positions of troops on this field, as approved by the War Department, is to place the principal tablet or monument of each command at the position occupied by the command in the main line of battle, and to mark the

several important positions subsequently reached by each command in the course of the battle by ancillary tablets with appropriate brief inscriptions giving details and noting the day and hour as nearly as possible.

The Confederate commands above mentioned are the only ones whose chief positions were upon ground now owned by the United States and are therefore the only ones which can be marked until the Government shall acquire the lands on which they formed and fought.

The Commission are much gratified to notice an awakening of interest in influential quarters among the people of the Southern States concerning this battlefield and the importance of erecting monuments to commemorate the heroism of their soldiers here, as the people and States of the North have done, and it is hoped that Congress will recognize and foster this praiseworthy sentiment springing up in the South by liberal appropriations needed to purchase and acquire title to the lands on which the Confederate troops operated and where their monuments must be placed.

They feel warranted in declaring that the Gettysburg National Park, though yet incomplete, is already the best marked battlefield in the world, and to all those who desire to understand the character and the extent of the work they say, Come and see.

While the Commission are satisfied that they could judiciously and economically use, during the next year, a much larger sum, they earnestly request and recommend that not less than \$75,000 be appropriated.

JOHN P. NICHOLSON,
WM. M. ROBBINS,
CHAS. A. RICHARDSON,
Commissioners.

HON. RUSSELL A. ALGER,
Secretary of War.

WAR DEPARTMENT,
CHICKAMAUGA AND CHATTANOOGA NATIONAL PARK COMMISSION,
Chattanooga, Tenn., October 26, 1898.

SIR: I have the honor to submit for your consideration a synopsis of the Annual Report of the Chickamauga and Chattanooga National Park.

Notwithstanding the occupation of the Chickamauga section of the park by the National troops during most of the season just closing, an unusual amount of monument work of a high grade was undertaken by the State commissions. The States of Wisconsin, Illinois, Kentucky, and Georgia have each been engaged in erecting general monuments for their respective States, which are in addition to the monuments and markers to individual organizations. This work made a new departure in State work, as this has heretofore been confined chiefly to monuments commemorating regiments and batteries. The information of the commission indicates that from this time forward there will be earnest rivalry among the States in this matter of general monuments.

The State of Illinois is erecting two of this class, one on Missionary Ridge, near Bragg's headquarters, of most commanding proportions, and a second on Orchard Knob. Georgia has nearly completed the most imposing shaft on the Chickamauga field. Kentucky will, next month, dedicate a monument of unique character, there being no other like it in the park. It commemorates both Union and Confederate troops, and the design is striking and most interesting. Wisconsin has completed a fine State monument on Orchard Knob. Indiana has secured locations for two of most imposing proportions. New York has completed two, one on Orchard Knob, and one on the Hooker battlefield on Lookout, which are not exceeded by any of their class in the country, and the commission of that State has prepared designs for a general monument on Lookout, to cost \$50,000. All of these are of granite and bronze.

In addition to this work, Tennessee has erected 47 markers of beautiful design; Georgia has placed 55, which are really monuments; Indiana has erected 50, and 25

more await their turn. Wisconsin is also preparing to erect markers on Missionary Ridge. The State of New York has also secured sites and is erecting monuments throughout Lookout Valley, where her troops were engaged under General Hooker; and also at Ringgold, Ga., at the extremity of the Government road which reaches that battlefield from Chickamauga. This is all work of the very first class, and it is to be followed by the location of markers on these fields by several of the other States whose troops were there engaged. Measures are in process for adding these sites to the park for a nominal consideration.

At the opening of the season the entire park tract was in excellent condition. The roads were resurfaced during the damp weather of the winter and early spring, and the spring burning of the leaves in the forests had finally very nearly overcome the sprouting of underbrush. All the dead timber had been cleared out of the forests. In short, if it had been known in advance that an army was to occupy the park it is difficult to see how the entire tract could have been put in better shape than the troops found it upon their arrival.

From the first week of April, when it was determined to assemble the regulars at Chickamauga, until the present time, the labors of the park force have been mainly directed, under your orders, to assisting in securing the comfort and convenience of the troops. Upon learning that the regulars would begin to arrive April 14, a large supply of wood was gathered from the park, and teams procured to haul it, until the wagon transportation on the way could be set up and made ready for use, and the quartermaster could procure wood under the regular methods of advertising for proposals and awarding contracts. The park force in this way furnished the 7 regiments of infantry, 6 of cavalry, and 10 batteries with wood for ten days, and in the meantime hauled the baggage of a number of the commands.

Lumber was also furnished for floors of all hospital tents, and water barrels from the park water supply for each hospital, for regimental headquarters, and for each company mess. Later, all of these liabilities were assumed and paid by the chief quartermaster. The regulars were in the park from the middle of April until after the middle of May. The water supply was abundant, and the same as afterward caused much complaint on the part of volunteers. It consisted of nine artesian wells and four bold springs of inexhaustible capacity. These latter, in addition to the drafts upon them for the men, furnished the horses of the six cavalry regiments and of the ten batteries, together with all the mules of the trains. There was no serious sickness among the regulars, and only one death. This healthful condition was the same as with the regulars assembled at the time of the dedication of the park, when some 1,200 were camped here for a month without a single patient in the hospital. The conditions were the same with the two companies of regular artillery which were brought one year since from near New Orleans to escape yellow fever and remained through the remainder of autumn without sickness.

Upon notification that 50,000 volunteers were to be assembled in the park, the necessity of rapidly perfecting their drill made it imperative to use the open grounds where the regulars had camped for drill grounds, and put the camps in the forests, of which there were about 5,000 acres in the park. These were, however, very open woods, with all underbrush cut out, and grass growing everywhere. The average number of trees to the acre is about 60, and shade just sufficient for comfort in the hot months. The surface soil is mixed with gravel, and after rains camps became speedily dry. There was no part of this wooded surface that the sun did not reach some time during every clear day. These statements as to the camps in the woods seem pertinent in view of the widespread misrepresentations of this feature of the encampment.

Placing the camps in the forests left about 2,000 acres of open fields for drill purposes. With the large force present, even this area was barely sufficient for the work in hand of rapidly preparing a large army for active field service.

As the wells in the park had been arranged for the visiting public, they were

mainly in the open grounds in the western portion of the park. Four of the five large springs of the park were also in this section. It therefore became necessary to provide a supply in the forest section, and work with this end in view was at once undertaken and pushed to completion with great energy by the engineer of the park. During the encampment twenty-seven additional wells were drilled through the solid rock underlying the park. By casing and surrounding the wells at the surface with masonry set in hydraulic cement, surface contamination was rendered impossible.

While this work was in progress an emergency pipe line, designed primarily to provide water for cooking, for the large number of animals, and for washing, was recommended and authorized by the Secretary of War, and constructed by the engineer of the park. The intake was established on Chickamunga Creek at the farthest point of park ownership of the stream, and above any possible wash from the camps, in spite of all that has been asserted to the contrary. This stream is fed entirely from mountain springs, and the valley it flows through is exceptionally clean and wholesome. Ten miles of mains and laterals were expeditiously laid, furnishing abundant water to nearly all the camps, and shower baths for all who cared to arrange them.

All the springs and wells on the park, and the water of the pipe line, were analyzed by competent chemical authority as soon as any question was raised as to the purity of the water supply, and all in use by troops pronounced fit for domestic use, except two wells, which at first were regarded as doubtful, and their use stopped, but which were found by more thorough analyses to be good. The pipeline water was twice analyzed chemically, and once bacteriologically by Dr. C. F. Craig of the Army, a recognized authority, and pronounced good. While the water supply of the park was abundant and wholesome, the outcry against it, though not based on analyses, became so general as to lead to much hauling of spring water for considerable distances, to the great inconvenience of the troops and the hospitals, and the unnecessary disturbance of the country.

The damage done to the park by the troops proves inconsiderable. The soldiers manifested unceasing interest in the monuments, markers, tablets, and batteries, and very few accidents to any of these occurred, and none to the monuments, because of the universal inclination to take good care of them.

The roads were severely tested by the immense hauling over them. They stood this wear in a way to excite general surprise, and to demonstrate their thorough construction.

The damage to timber by animals was the most serious injury, but when the trees thus killed are cut out there are very few spots where they will be missed.

One important result has followed which goes far toward compensating for all damage. The hay fed to animals in every camp has spread grass, which is now growing vigorously in all parts of the park, and has already established so many centers of growth as must lead to a carpet of grass through the entire forest section, which will rapidly replace the wild grass.

The work of restoring the park is rapidly progressing. With the exception of resurfacing the roads where necessary and cutting out the dead timber, it will be virtually finished by the close of the present season. The road work and timber cutting will be carried forward during the winter.

Thanking you for the promptness with which every suggestion was approved looking to increasing and maintaining the convenience and comfort of the soldiers through any assistance that the park force could give, I have the honor to remain,

Very respectfully, your obedient servant,

H. V. BOYNTON,
Chairman Park Commission.

The SECRETARY OF WAR,
Washington, D. C.

WAR DEPARTMENT, SHILOH BATTLEFIELD COMMISSION,
Pittsburg Landing, Tenn., October 31, 1898.

SIR: The Shiloh Battlefield Commission submits this summary of its annual report: Since the last report the examination of the field of Shiloh and the study of the reports for locating camps, battle lines, and roads has progressed, and the commission is now at work on the battle of the second day.

The clearing of the underbrush on the field is being rapidly done, and the expenditure in this respect is shown below.

A force consisting of three gangs of laborers, each under a foreman, is at work building roads and is now on the main Pittsburg Landing and Corinth road, the road being built having been ceded to us by both the State and county. Application has been made to the county court for the cession of other roads that are intended to be put in condition. The roads are to be covered with gravel and very little grading will be done, the contour of the land being kept nearly as possible.

During the year a commission authorized by the legislature of Illinois, consisting of survivors engaged in the battle of Shiloh, were with us at Shiloh and confirmed the lines and camps as we had them plotted upon the maps. The legislature of Ohio has authorized, and the governor has appointed, a similar commission, and we meet them at Pittsburg Landing on November 18, 1898. Other States that had troops at Shiloh have been asked to appoint similar commissions.

Since the last report the titles to the following lands have been perfected and the land paid for:

	Acres.
J. W. Sowell.....	37.54
S. M. Rogers.....	69.81
J. J. Fraley.....	212.97
G. H. Hurley.....	43.50
D. H. Cantrell.....	36.28
W. A. Rowsey.....	89.65
Total.....	489.75

The amount of expenditures since the last report, from October 1, 1897, to November 1, 1898, is as follows:

Salaries.....	\$13,000.00
Traveling expenses.....	251.86
Office expenses.....	1,437.94
Land and conveyancing.....	5,689.30
Topography and maps.....	6,617.24
Engineering superintendence.....	320.00
Buildings and quarters.....	242.54
Clearing land.....	809.59
Roads and bridges.....	1,279.46
Monuments and markers.....	54.42
Watchmen and guards.....	653.33
Total.....	30,355.88

The appropriation for the present year was \$55,000, and one of \$75,000 is asked for the fiscal year commencing July 1, 1899. The balance now on hand, \$87,737.24, will continue the work in progress and pay for the land contracted for to the end of the present year.

Very respectfully, your obedient servant,

CORNELIUS CADLE, *Chairman.*

The SECRETARY OF WAR.

Inviting attention to these interesting reports, special attention is called to the report of the Chickamauga and Chattanooga National Park Commission, which contains a statement as to the conditions at the park during the period it was occupied by the troops.

The marking of the Antietam battlefield is finished. No report is therefore submitted for this park.

R. A. ALGER,
Secretary of War.

P A P E R S

ACCOMPANYING THE

REPORT OF THE SECRETARY OF WAR.

REPORT OF THE QUARTERMASTER-GENERAL.

QUARTERMASTER-GENERAL'S OFFICE,
Washington, October 31, 1898.

SIR: I have the honor to submit the annual report of the operations of the Quartermaster's Department for the fiscal year ended June 30, 1898. This report will also show briefly the operations of this Department from July 1, 1898, to the close of hostilities with Spain:

FINANCIAL STATEMENT.

By acts of Congress approved March 2 and June 4, 1897, there was appropriated for the regular service of the Quartermaster's Department for the fiscal year ended June 30, 1898, the sum of	\$7, 711, 367. 75
During the fiscal year there was deposited to the credit of appropriations, 1897-98, amounts received from sales to officers, etc., the sum of	477, 890. 37
Making a total of	8, 189, 258. 12
Of this amount there was remitted to disbursing officers. \$7, 839, 858. 06	
There was paid out on account of settlements made at Treasury of claims and accounts	9, 245. 35
	7, 849, 103. 41
Leaving a balance available for payment of outstanding obligations incurred, or fulfillment of contracts properly entered into within the fiscal year, of.....	340, 154. 71
By act approved May 4, 1898, there was appropriated for deficiencies January 1, 1899, for regular supplies, incidental expenses, cavalry and artillery horses, barracks and quarters, transportation, and clothing, camp and garrison equipage	19, 550, 000. 00
There was placed to the credit of this appropriation from sales to officers, etc.	950. 86
	19, 550, 950. 86
Of this amount there was remitted to disbursing officers.....	11, 012, 554. 18
Leaving a balance available until January 1, 1899.....	8, 538, 396. 68
On the 1st of July, 1897, there was on hand from regular appropriations for the service of the Quartermaster's Department pertaining to the fiscal year ended June 30, 1897	1, 837, 845. 26
And from appropriations pertaining to previous fiscal years the sum of.	883, 746. 43
Making a total balance on hand from all appropriations July 1, 1897	2, 721, 591. 69
For specific purposes there was appropriated during the fiscal year ended June 30, 1898	400, 187. 15
During the year there was deposited and transferred to credit of appropriations other than those of 1897-98, shown above, the sum of.	212, 715. 71
Making a total of.....	3, 334, 494. 55

Of said amount there was remitted to disbursing officers	
the sum of.....	\$906, 208. 58
There was paid out on account of Treasury settlements	
and transferred the sum of	587, 231. 82
There was carried to surplus fund the sum of	859, 153. 66
	\$2, 352, 594. 06
Leaving a balance of.....	
	981, 900. 49

Of the \$200,000 appropriated by act approved December 18, 1897, for relief of people in the mining region of Alaska, there has been drawn by this office the sum of \$72,000.

Of the \$50,000,000 appropriated by act of March 9, 1898, for national defense, the sum of \$1,500,526.95 was allotted to this Department to June 30, 1898, of which the sum of \$1,497,397.67 has been remitted to officers and transferred, leaving a balance on hand on June 30, 1898, of \$3,129.28. Since the close of the fiscal year, June 30, 1898, an additional sum of \$2,295,000 was allotted to this Department from this appropriation; the sum of \$919,106.97 was received by credit deposits; and from the total on hand the sum of \$915,084.35 was remitted to disbursing officers, leaving a balance on hand September 8, 1898, of \$2,302,151.92.

Under act approved July 7, 1898 (deficiency), Congress appropriated for the service of this Department, under the various heads of appropriations, the sum of \$103,200,000.

From July 1 to August 15, 1898, the sum of \$20,825,212.35 was remitted to disbursing officers by this Department from the appropriations made therefor under the various headings.

DUTIES OF THE QUARTERMASTER'S DEPARTMENT.

Under existing laws the Quartermaster's Department, under the direction of the Secretary of War, provides the Army with military stores and supplies requisite for its use, such as clothing and equipage, tents, band instruments, tableware and mess furniture, equipments for post bakeries, fuel, forage, stationery, lumber, straw for bedding for men and animals, all materials for camp and for shelter for troops and stores, furniture for barracks, such as bunks, benches, chairs, tables, lockers, heating and cooking stoves for use in public barracks and quarters, tools for mechanics and laborers in the Quartermaster's Department, furniture, text-books, papers, and equipment for post schools, reading matter for post libraries, wagons, ambulances, carts, saddles, harness, water supply, sewerage, plumbing, illuminating supplies, and heating for all military posts and buildings.

The Department is also charged with the duty of transporting, by land and water, troops, munitions of war, equipments, and all articles of military supplies from the place of purchase to the several armies, garrisons, posts, and recruiting places.

Under act of Congress amending section 1661, Revised Statutes, for arming and equipping the militia, this Department supplies quartermaster stores, clothing, and equipage to the militia of the several States and Territories, and transports the same to said States and Territories. It also furnishes transportation for ordnance and ordnance stores issued by the United States to the militia of the several States and Territories. It also transports the property for other Executive Departments on requisitions, payments therefor being made by the respective Depart-

ments to the carriers upon accounts forwarded through the Quartermaster-General's Office for that purpose.

This Department prepares the necessary plans and constructs all buildings at military posts, such as barracks, quarters, storehouses, hospitals, etc., builds wharves, constructs and repairs roads for military purposes, builds all necessary military bridges, provides, by hire or purchase, grounds for military encampments and buildings; contracts for all horses for cavalry, artillery, and for the Indian scouts, and for such infantry and members of the Hospital Corps in the field campaigns as may be required to be mounted; pays for all incidental expenses of the military service which are not provided by other corps.

The care and maintenance of national cemeteries is an additional duty of this Department. It also provides suitable headstones to mark the graves of all soldiers, sailors, or marines who served during the late war, including those who have been buried in private cemeteries and other burial places.

Section 1139, Revised Statutes, makes it the duty of the Quartermaster-General, under the direction of the Secretary of War, to prescribe and enforce a system of accountability for all quartermaster's supplies furnished the Army, its officers, seamen, and marines.

For eight months of the last fiscal year the business of this Department was conducted under the usual and ordinary conditions incident to a country at peace with all the world. It was only after Congress provided, by act approved March 9, 1898, \$50,000,000 for "the national defense" that any steps could be taken by this Department in the way of preparation for war should it come.

CLOTHING AND EQUIPAGE SUPPLIES.

The matter of clothing and equipage for the Army was one of the most important subjects that engaged the attention of this Department during the closing three months of the last fiscal year.

On April 1, 1898, this Department was amply provided with all necessary clothing and equipage supplies for the then existing small Army of 25,000 men, but on the 23d of that month, when the first call for volunteers was made, the problem of clothing and equipping an army of 125,000 men presented itself. Four days later, on April 26, Congress increased the Regular Army to 61,184 men, and a month later, on May 25, the second call for 75,000 volunteers was issued. To this was added 10 regiments of immunes, 3 regiments of cavalry, 3 regiments of engineers, and 1 of the Signal Corps, making a grand total of about 275,000 soldiers called into active service in a few weeks.

To properly clothe and equip this large number of soldiers for active and immediate operations in the field was a problem of vast proportions. This Department set upon this task without a moment's delay, every known expedient was at once resorted to with a view to obtaining the necessary quartermaster supplies. Many difficulties were in the way. Contracts were promptly entered into for all the articles of clothing and camp equipage for which there would be an early demand, great care being taken to prevent the supply of articles of inferior quality. The kerseys and flannels of standard quality used for making army blouses and trousers were not to be had in the market, and it was necessary to have them manufactured. In the meantime the Department, as far as possible, endeavored to procure articles conforming as nearly as practicable to existing standards, but had to resort, at

first, to some extent to the purchase of dark-blue trousers so that the men might be quickly supplied.

The prompt supply of the large number of tents required by the increased force was a problem of difficult solution and called for extraordinary endeavors.

At the beginning of the war there was but little cotton duck to be found in this country entirely suitable for military purposes, the supply having been depleted by the large demands for tentage for the Klondike region and the extensive purchases by the Navy Department. Energetic efforts were promptly made in every locality, East and West, wherever it was found possible to obtain the material and labor skilled to manufacture tents. Through the courtesy of the Post-Office Department the force of the mail bag repair shop was placed at the disposal of this Department, which was of great assistance.

With all the perplexing difficulties confronting the Department in the matter of clothing and equipage supplies, it is remarked that in the short period of three and one-half months an army of 275,000 men was equipped with such supplies, and it is further remarked that the army in Cuba, consisting of 16,000 men, leaving their tentage behind, arrived at their camp at Montauk Point, New York, and found a complete new outfit of tents and clothing ready there for them.

The detailed statements accompanying the report of the officer on duty in this office specially charged with this branch of the work, will show the various places at which the purchases and contracts for clothing and equipage were made, and that it was the endeavor of this Department to reach every principal locality that could contribute towards meeting the requirements of the service, taking into consideration the quality and kind of supplies required.

The following are the principal articles that were manufactured at the Philadelphia, Washington, Jeffersonville, St. Louis, and San Francisco depots, and for the purpose of comparison the data is given in two different periods, viz, from July 1, 1897, to April 30, 1898, 10 months peace period, and from May 1, 1898, to August 15, 1898, 4 months war period.

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 4 months war period.
Dress coats, all kinds.....	1,946	624
Overcoats, kersey, made and unmade.....	6,741	18,694
Blouses, made and unmade.....	17,255	116,543
Coats, canvas fatigue.....	8,143	18,620
Trousers:		
Kersey, foot, made and unmade.....	26,238	84,559
Kersey, mounted, made and unmade.....	7,903	17,888
Canvas, fatigue.....	12,918	17,947
Overalls.....	1,446	5,147
Stable, frocks.....	3,115	-----
Shirts, dark blue flannel.....	29,046	73,577
Drawers, cotton flannel.....	51,588	103,662
Tents:		
Conical wall.....	328	24
Hospital.....	207	426
Wall.....	589	668
Shelter.....	6,351	197,502
Common.....	882	4,923

The following statement shows the principal articles that were purchased or contracted for during the same two periods:

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 2½ months war period.
Blankets, wool	22, 000	546, 338
Blouses		274, 232
Caps, forage	77, 000	230, 000
Canvas fatigue coats		81, 001
Canvas fatigue trousers	pairs	81, 580
Drawers, canton flannel	do	50, 000
Drawers, summer	do	1, 054, 900
Field and summer uniforms	43, 340	153, 180
Hats, campaign	18, 040	476, 705
Leggings	11, 000	585, 800
Overcoats		120, 000
Ponchos, rubber	32, 925	325, 385
Shirts, dark blue flannel		548, 634
Shoes:		
Barrack	pairs	76, 083
Calfskin	do	782, 803
Stockings:		
Cotton	do	1, 996, 600
Woolen	do	150, 942
Trousers:		
Foot	do	387, 756
Mounted	do	38, 000
Duck	do	115, 000
Undershirts:		
Cotton	40, 000	1, 312, 656
Woolen		44, 356
Tents:		
Common		43, 077
Conical wall		716
Hospital		5, 520
Shelter, halves		174, 577
Wall		7, 982
Duck, tent, all kinds	yards	1, 494, 628
Flannel:		
Blouse	do	833, 679
Canton	do	1, 008, 511
Shirting	do	675, 630
Kersey, sky-blue	do	577, 208

The following statement shows the principal issues made during the same two periods:

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 2½ months war period.
CLOTHING.		
Blankets, wool	27, 550	280, 763
Blouses	85, 624	302, 126
Caps, forage	81, 784	17, 304
Canvas fatigue coats	84, 775	50, 000
Canvas fatigue trousers	pairs	60, 693
Campaign hats	39, 265	496, 196
Drawers:		
Canton flannel	pairs	66, 804
Summer	do	609, 347
Leggings	do	397, 670
Overcoats	17, 016	15, 388
Rubber ponchos	6, 822	299, 497
Dark-blue flannel shirts	86, 609	553, 672
Shoes:		
Barrack	pairs	60, 998
Calfskin	do	516, 436
Stockings:		
Cotton	249, 746	1, 174, 872
Woolen	73, 950	51, 473
Trousers:		
Foot	do	331, 519
Mounted	do	46, 626

Articles.	July 1, 1897, to Apr. 30, 1898, 10 months peace period.	May 1, 1898, to Aug. 15, 1898, 3½ months war period.
CLOTHING—continued.		
Undershirts:		
Cotton.....	56, 152	575, 672
Woolen.....	29, 327	57, 891
EQUIPAGE.		
Tents:		
Common.....	1, 971	44, 676
Conical wall.....	486	1, 212
Hospital.....	144	4, 332
Shelter, halves.....	8, 824	232, 599
Wall.....	923	7, 736
MATERIALS.		
Flannel:		
Blouse.....yards..	31, 241	205, 128
Canton.....do.....	150, 728	312, 181
Shirting.....do.....	63, 556	144, 340
Duck, cotton, for tents, all kinds.....do.....	170, 568	1, 106, 198
Kersey, sky-blue, 22-ounce.....do.....	104, 244	194, 981

A comparison of the figures given in the above statements will afford some idea as to what this Department has accomplished in the short period of three and a half months in the matter of clothing and equipage alone.

In this connection it is proper to state that many of the States which contributed toward filling the quota of volunteers of the first call held their men in camps before they were mustered into the United States service, and when turned over to the General Government they were in many cases without proper clothing; this was especially the case in regard to underclothing and shoes.

Congress provided for this branch of the service, for the last fiscal year, the sum of \$1,050,000, and a further sum of \$10,000,000 by act approved May 4, 1898. To this was added the sum of \$189,248.37 for reimbursements on account of issues to the militia, and the sum of \$95,125.61 for collections by the Pay Department, etc., making a total of \$11,334,373.98. Of this amount, the sum of \$5,530,612.06 was paid out during the fiscal year, leaving a balance on hand on June 30, 1898, of \$5,803,761.92; to this should be added the sum of \$26,000,000 appropriated by act approved July 7, 1898, making the total amount available \$31,803,761.92. Of this amount, the sum of \$7,229,997.07 was required on August 15 last to pay all expenditures on account of clothing and equipage by this Department up to that date.

The issues to the militia of the several States and Territories during the past fiscal year amounted to the sum of \$189,870.72, which includes \$474.02 from appropriation "Regular supplies" and \$284.85 from "Army transportation."

The sum of \$8,234 was expended during the fiscal year from the appropriations of the Quartermaster's Department for the maintenance of the Indian prisoners of war held captive at Fort Sill, Okla. These prisoners consist of 298 Apache Indians—68 men, 105 women, 70 boys, and 55 girls.

SHOES.

The subject of improving the army shoe has been under consideration for some years. A shoe made of lighter calfskin, upon lasts conforming more closely to the anatomy of the human foot, was adopted last January. This shoe is of excellent quality and make, hand sewed. The shoes now procured under contracts made within the past few

months conform to the new pattern, but the soles are sewed on by the most approved welt machine. The advisability of substituting the latter mode of fastening the soles is under consideration.

The shoes procured at the outbreak of hostilities, and which were found to be essential for the immediate equipment of the organizations then being rapidly mustered into service, did not conform altogether to the newly adopted army shoe. The urgency of the situation made it necessary to procure a large number of shoes at once, and as the newly adopted army shoe could not be procured in sufficient quantity, it was found absolutely necessary to purchase such shoes as could be had in the market, conforming approximately to the standard army shoe in pattern and quality. As a rule these shoes were found good and serviceable.

CLOTHING OF LIGHTER TEXTURE FOR SOUTHERN AND TROPICAL COUNTRIES.

To meet calls from the army in the South for garments made of cotton fabric this Department procured a supply made from both twilled and plain duck. These were issued to troops in Cuba, Porto Rico, and as far as practicable to various organizations in camps in this country.

BAND INSTRUMENTS.

Some difficulty was experienced in supplying instruments to the many new military bands of the increased Army. As far as possible they were procured of the best domestic production obtainable. It was impracticable to furnish all the regiments before the cessation of hostilities.

GRATUITOUS ISSUES.

By direction of the Secretary of War the clothing of part of the troops returning from Cuba was ordered to be destroyed to prevent contagion, and the issue to each of the men, free of charge, of another suit in lieu of the one destroyed was authorized. Similar issue was also made to the men in hospitals whose clothing was destroyed for the same reason.

MEANS OF TRANSPORTATION.

The following statement shows the number and cost of public animals, wagons, and harness purchased from July 1, 1897, to March 31, 1898, covering the nine months period to the commencement of the war, and from April 1, to August 31, 1898, covering the war period:

PUBLIC ANIMALS.

	Peace period, from July 1, 1897, to March 31, 1898 (nine months).			War period, from Apr. 1, 1898, to Aug. 31, 1898 (five months).		
	No.	Total cost.	Average cost.	No.	Total cost.	Average cost.
Cavalry horses	668	\$84,274.50	\$126.15	10,748	\$1,078,813.82	\$100.42
Artillery horses	118	16,260.00	137.79	2,551	333,807.11	130.85
Draft horses	89	5,776.50	148.11	1,137	142,561.75	125.38
Riding horses	1	123.75	123.75	* 2,115	164,330.00	77.70
Bell horses				32	11,595.00	49.84
Pack horses				40	1,200.00	30.00
Draft mules	215	21,466.48	99.84	17,515	1,927,608.40	110.05
Pack mules	38	2,771.60	72.93	2,667	221,774.00	83.15
Totals	1,079	130,672.83		36,800	3,871,690.08	

* Includes 1,500 little horses for Cuban service.

WAGONS AND HARNESS.

	Peace period, from July 1, 1897, to March 31, 1898 (nine months).			War period, from Apr., 1, 1898, to Aug. 31, 1898 (five months).		
	No.	Total cost.	Average cost.	No.	Total cost.	Average cost.
Army wagons				804	\$61,467.00	\$101.77
Escort wagons				109	8,584.75	78.76
Farm wagons				3,605	238,942.75	66.28
Spring wagons	8	\$2,295.00	\$286.87	70	18,218.00	260.26
Wagonettes	4	944.00	236.00	8	1,540.60	192.58
Ambulances:						
Rucker				500	122,950.00	245.90
Red Cross				59	18,259.50	224.74
Miscellaneous wagon*				224	13,148.50	58.70
Total	12	3,239.00		5,179	478,111.10	
Harness, sets, single	30	900.00	30.00	28,012	358,449.18	

From April 1, 1898, to August 31, 1898, there were purchased 5,130 field ranges, at a cost of \$106,742; 150 bread ovens, costing \$20,540; 5,434 field desks, at a cost of \$38,471.80; and 4,580 paulins, at a cost of \$87,644.20.

Coal for use of transport vessels was contracted for as follows:

	Tons.
Tampa, Fla	3,306
Fernandina, Fla.	5,547
Santiago, Cuba	3,978
Ponce, Porto Rico	6,422
Port Tampa, Fla	19,225
Manila, Philippine Islands	16,000
Honolulu	28,600
Total	83,078

DIVISION OF TRANSPORTATION.

Under the order of the honorable the Secretary of War, dated July 18, 1898, the duties of this division consist mainly of rail and water transportation.

During the fiscal year ended June 30, 1898, transportation was furnished for 709,617 persons, 60,632 animals, and 1,529,585 tons of materials.

RAIL TRANSPORTATION.

[Since April 1, 1898.]

The orders for the movement of the regular troops to Chickamauga, New Orleans, Mobile, and Tampa were sent out by the Adjutant-General of the Army about the middle of April, 1898, and were addressed to the several department commanders. They designated the point of destination and the time at which the movement was desired to take place.

The chief quartermasters of the respective departments were immediately charged by the Quartermaster-General with all the necessary transportation arrangements. The troops were put in motion as fast as arrangements with the railroad companies could be perfected, and were rapidly assembled at the points designated by the War Department. In no case was any delay reported to this office, nor is any known to have occurred. These troops were moved with the most satisfactory dispatch and an entire absence of accident.

Upon the receipt by the Quartermaster-General from the War Department of a list showing the assignment of the volunteer forces to the several national encampments of mobilization, the proper officers of

the Quartermaster's Department throughout the country were directed, in anticipation of the required movement, to examine the list supplied by the War Department and familiarize themselves with every detail of the subject; to consult the proper railroad officials interested in the transportation of these troops, and determine in advance as far as practicable all preliminaries that could be settled before the actual movement of the troops occurred, such as determining routes of travel, rates, etc., for each movement, so that when the troops should actually move no possible delay should occur, and they might be moved with comfort and celerity.

The officers of the Department acted in all these matters with commendable zeal and energy, and in many cases agreed upon flat rates to govern all such shipments, which were most advantageous to the Government as a matter of economy.

On May 13 the Adjutant-General sent to the Quartermaster-General his first orders for the movement of volunteers—a separate order for each organization—designating the point of destination. Instructions were immediately wired, in all cases of even date with the order of the Adjutant-General, to the quartermasters most convenient to move the troops. At the same time the commander of the organization was wired as to the officer charged with the movement, and the chief quartermaster at the national encampment was also informed by telegraph that the shipping officer would wire him the date of departure and probable time of arrival of each organization. Under these instructions the volunteer troops have gone to destination with promptness and remarkable freedom from accident or delay en route.

A statement has been prepared in this office showing, as far as possible, the shipments of the various volunteer organizations, with all detailed information as to number of officers and men, dates of movements, cost of the service, passenger and freight, with the rates at which each movement has been made. This report is voluminous, and the conclusions or summary, from the information obtained to date, only can be stated in the present report. Moreover, it must remain for some time yet incomplete until the accounts for all these services are rendered by the many railroads of the country, critically examined and paid. It will, when completed, present in tabular form a correct and detailed statement of all railroad transportation connected with the movements of troops of the Regular and Volunteer Army during the war with Spain.

From April 1, 1898, to the breaking up of Camp Wikoff the aggregate movement of troops by rail amounted to 17,863 officers and 435,569 men.

Low rates were secured by the Quartermaster's Department in making these movements, generally not exceeding $1\frac{1}{2}$ cents per mile for passengers, and in many cases much less, and about one-half the prevailing tariff rates for freight in excess of 150 pounds per man carried free.

A special outfit was provided under orders of the Secretary of War, to be used by the Surgeon-General as a hospital train. This train was made up of 10 tourist sleepers, 2 kitchen and dining cars, and a combined passenger and baggage car. It was furnished by the Medical Department, placed in charge of its trained nurses, and kept exclusively for the purpose of carrying sick and wounded to points designated by the proper medical officers.

Under circulars of the Treasury Department, No. 187, November 11, 1897, and No. 83 of May 17, 1898, the Union Pacific and Kansas Pacific railroads, having been sold, ceased to be bond-aided railroads from November 1, 1897, and March 31, 1898, respectively.

WATER TRANSPORTATION.

The sum of \$90,757.34 was expended during the fiscal year to maintain, including repairs, the 11 vessels owned by this Department, which is exclusive of the transports chartered and purchased for the prosecution of the war with Spain.

Anticipating the possible needs of the Quartermaster's Department for ocean transportation for the movement of troops and supplies to Cuba, early action was taken by this office communicating with the various American steamship companies conducting the ocean traffic on the Atlantic and Gulf coasts, to ascertain what vessels were available for charter for that purpose, and an experienced officer of the Department was sent to New York City to consult with the companies and to inspect and report upon the suitability of the vessels offered for charter. Similar measures were taken at all other points on the Atlantic and Gulf coasts where vessels were offered for charter. Whenever practicable an officer of the Navy was detailed by that Department to assist in the inspection.

These precautionary measures enabled this Department to select those vessels best adapted for the service for which they were specially required.

From the declaration of war to June 30, 1898, this Department chartered for service on the Atlantic and Gulf waters 43 vessels, with a total tonnage of 104,201, and a carrying capacity of 1,287 officers, 22,335 men with their arms, ammunition, equipment, medical and subsistence supplies, and 6,746 animals. There were also chartered 4 water boats, with a total capacity of 820,000 gallons, 3 lighters, 2 tugs, and 1 barge; also 2 barges purchased.

In addition to the above there were chartered—for the Signal Service of the Army, the steamship *Adria*, used as a cable boat; the steamship *Fanita* for the Secret Service, and the steamer *Gretchen* for inspection purposes.

The operations of the Navy in the harbor at Manila required that provision be made for the transportation of troops and supplies to the Philippines.

Some difficulty was experienced in securing transport ships on the Pacific coast, not because the steamship companies were unwilling to charter their vessels to the Government, but from the fact that their ships were engaged in their regular traffic across the Pacific, and were not available until their arrival at their home ports on the Pacific coast.

In order that sufficient means of transportation might be secured, it became necessary to ask Congress to grant American registry to some available ships which were under foreign registry.

Fourteen ships were chartered to June 30, 1898, on the Pacific coast, having a total tonnage of 41,152 and carrying capacity of 629 officers and 13,059 men, with their complete outfit of camp and garrison equipment, arms, ammunition, medical and subsistence stores for a voyage of over 7,000 miles.

The combined fleets on the Atlantic and Pacific coasts at the close of the fiscal year consisted of 69 vessels of various classes, with a total tonnage of 145,353 tons and carrying capacity of over 37,000 men.

To convert the vessels composing this fleet from their ordinary uses as freight vessels into safe and commodious transport ships required considerable alteration. Sleeping accommodations for the men and stalls for the animals had to be constructed; largely increased water capacity had to be provided by the construction of extra tanks and the supply of barrels and casks, and provision made for pure-air ventila-

tion. For this last-mentioned purpose many of the vessels were supplied with electric plants for running fans and for lighting the ship.

Special care was given to the fitting out of the transports on the Pacific coast to provide the troops with comfort, cleanliness, protection to health, and the proper means for cooking during the long voyage to Manila. For these purposes galley facilities, lavatories, and closets were constructed in all these vessels.

The total expenditures for fitting up these vessels (as far as reported), to June 30, 1898, amounted to \$186,632.68, which includes the sum of \$7,694.30 for fitting up the steamship *City of Peking*, which was chartered by the Navy Department and turned over to the War Department for transportation of the Army.

Under the terms of the charters this Department furnished all coal for running these vessels, and the water required for boilers and drinking purposes. The supply of coal for this purpose has been purchased as far as possible by contract at lowest obtainable rates for delivery to the various ports where needed to supply these ships.

The sum expended for supply of water amounted to \$21,000. The payments for services of the vessels under charter to June 30, 1898, were as follows:

On Atlantic coast and Gulf waters	\$1, 007, 852. 50
On Pacific coast	319, 764. 17
Total	1, 327, 716. 67

To provide for the transportation of the sick and wounded, this Department purchased from the Maine Steamship Company the steamship *John Englis* for the sum of \$450,000. This ship was fitted up at considerable expense as a hospital ship, and every appliance provided for the care, comfort, and treatment of the sick and wounded. The interior of the ship was remodeled and provided with an electric plant for lighting and purifying. Sterilizing and laundry plants and two steam launches were also provided. The expenditures for refitting amounted to \$136,851.11. This hospital ship was renamed *Relief*, and is under the control of the Medical Department of the Army, with an officer of that Department detailed to command the vessel.

Since the close of the fiscal year the steamship *Missouri*, used by the Medical Department of the Army as a hospital transport, has been fitted up for that purpose by the Quartermaster's Department at an expenditure of \$85,854.

Since the 1st of July, 1898, there have been chartered on the Atlantic coast four vessels, viz: Steamship *Wanderer*, steamship *La Grande Duchesse*, steamship *Tarpon*, and steamship *Ute*. These vessels were made auxiliary to the fleet of transports for transportation of troops and supplies to Cuba and Porto Rico, and increased the tonnage to 111,099 tons and the carrying capacity to over 25,000 men.

To meet the needs for light-draft vessels for towing and lightering at Santiago, two fine ocean tugs were chartered early in July, 1898, the *Underwriter* and the *Gladisfen*. There were also chartered for service in the movement of troops and supplies at Montauk, after the return of General Shafter's army from Cuba, one large steamship for the transportation of sick and wounded, and five small steamers, three barges, and two flatboats. These vessels, since the abandonment of Camp Wikoff as a camp, have been dispensed with.

On the Pacific coast four additional vessels were chartered for the transportation of troops and supplies to Manila, viz: *City of Rio de Janeiro*, *Pennsylvania*, *St. Paul*, and *Tacoma*.

There were also purchased for the service of the Army on the Pacific Ocean two large, commodious steamships, the *Scandia* and the *Arizona*, which have been fitted up, the former as a hospital ship and the latter for the transportation of troops and supplies to the newly acquired islands of the Pacific Ocean. These vessels have a tonnage of 4,243 and 5,000 tons, respectively, and with the four chartered since July 1, 1898, increased the total tonnage of the fleet operating on the Pacific Ocean to 61,287 and the carrying capacity to over 20,000 men.

The chartered ships, steamship *Australia*, steamship *City of Sidney*, and the steamship *Colon*, which formed the first expedition of the Army to Manila, have returned to San Francisco and their charters have been canceled.

The carrying capacity of the chartered steamships employed in connection with General Shafter's army for the invasion of Cuba was not found adequate to promptly transport the number of troops, in addition to that army, required for Cuba and Porto Rico, and it therefore became necessary to increase the number of transport vessels with larger carrying capacity for men and animals with bilge keels to prevent rolling, and thus make the ships more comfortable for stock.

Congress being averse to admitting foreign ships to American registry, the Secretary of War decided to direct the purchase of vessels and have them fitted up to meet the needs of the Army for the safe and comfortable transportation of men and animals and the transportation of army supplies. Fourteen large steamships were purchased and fitted up for carrying men, animals, freight, etc. The following is a list of these vessels:

Name of vessel.	Tonnage.	Cost.	Class.	Carrying capacity.		
				Officers.	Men.	Animals.
Panama, No. 1.....	2,085	\$41,000	Freighter.....	10	400	.....
Port Victor, No. 2.....	2,792	175,000	do.....	25	400	.....
Rita, No. 3.....	2,194	125,000	do.....	15	700	.....
Mohawk, No. 20.....	5,658	660,000	Combination.....	80	1,000	1,000
Mobile, No. 21.....	5,780	660,000	do.....	80	1,000	1,000
Massachusetts, No. 22.....	5,673	660,000	do.....	80	1,000	1,000
Manitoba, No. 23.....	5,673	660,000	do.....	80	1,000	1,000
Minnesota, No. 24.....	5,796	660,000	do.....	100	1,200	1,000
Mississippi, No. 25.....	3,732	350,000	do.....	40	800	800
Michigan, No. 26.....	3,722	350,000	do.....	40	800	800
Roumanian, No. 27.....	4,126	240,000	do.....	45	1,100	50
Obdam, No. 30.....	3,656	230,000	Troop ship.....	50	1,800	100
Berlin, No. 31.....	5,641	400,000	do.....	75	2,000	.....
Chester, No. 32.....	4,770	200,000	do.....	.....	.....	.....
Total.....	61,286	5,431,000	.....	720	12,700	6,750

Eight of these vessels were provided with refrigerators for the transportation of fresh meat, 7 of them having a capacity of 1,000 tons each. Two, the *Panama* and the *Rita*, were captured by the Navy and were purchased by this Department after having been condemned as prizes by the proper courts and offered for sale.

All of these were merchant vessels and were temporarily fitted up as army transports to meet the urgent demands of the service, for which purpose an expenditure of \$178,018.37 was made.

It is the intention to overhaul all of these 14 vessels and refit them for the army-transport service. Two of them, the *Mohawk* and the *Mobile*, are now in course of refitting. Specifications for refitting the others are in preparation and the work will be commenced as soon as they can be spared from the service upon which they are now engaged.

When the vessels are fitted up in the manner designed the Department will possess a fleet of the finest transport vessels afloat and be thoroughly equipped to meet every demand upon it for ocean transportation.

TRANSPORTATION OF ARMY TO CUBA.

The fleet of transport ships which was concentrated at Port Tampa, Fla., in June last for the transportation of the army of General Shafter to Cuba, consisting of 38 vessels, including 2 water boats, 3 steam lighters, 1 collier, and 1 tug, had been fitted out for a voyage to the vicinity of Havana, distant about 400 miles; 2 decked barges were also provided by the Engineer Department. One of the steam lighters, the tug, and a decked barge failed to reach Cuba.

Upon embarkation of the troops it was found that the vessels would not safely and comfortably carry more than about 16,000 men with their 2,295 animals, equipments, ammunition, subsistence, and medical supplies on a voyage of 1,000 miles.

This entire fleet arrived without serious mishap at Daiquiri. Upon disembarkation of the army difficulty was encountered by reason of the lack of sufficient means for lightering the transports which could not approach the small dock at Daiquiri, and this office was advised of the needs of the command. Active efforts were immediately made by this office to supply the needed lighterage. Two decked barges in tow of the U. S. S. *Fern* were dispatched at once from Key West, Fla., which arrived safely, but were wrecked the day after their arrival. A seagoing tug, the *Nimrod*, chartered in Mobile, with three barges in tow, the *Ora*, *Ben*, and *Touart*, the former chartered, the last two purchased by the Department, was dispatched with orders to proceed direct to Santiago; and the chartered seagoing tug *Underwriter*, with two decked barges belonging to the Engineer Department of the Army, was dispatched to Santiago from New Orleans. These tugs lost all their barges and only one of the tugs succeeded in reaching Cuba. Under instructions from this office the steam lighter *Bessie* was dispatched from Tampa to Santiago, but, her boilers springing a leak, she returned to Tampa for repairs.

These unsuccessful efforts to relieve the situation of the army in Cuba led the Department to enter into contract with the firm of D. Van Aken & Co., of New York City, to fit out an expedition with a large force of mechanics of various trades, and laborers, with machinery, such as pile drivers, implements for construction of docks and railways, with the necessary materials—iron and lumber—for building docks, lighters, repairing railroads and engines. The company was furnished the steamship *Panama* and two fine ocean tugs, the *Gladisfen*, which was chartered, and the *Gypsum King*, which was purchased. This outfit proceeded to Santiago and thence to Ponce, Porto Rico, where their services have been of great value in the operation of the army in that harbor.

To provide lighterage for the transport ships this Department purchased the tugs *Gypsum King*, *Britannia*, and *Sarah*, the barges *E. L. Bartley*, *Willie*, *Annie*, *Mocha*, *Helen*, and the lighter *L. E. Rhinehardt*, costing \$241,800. These vessels, with the exception of the tug *Britannia*, which has been in service in New York Harbor and at Montauk Point, have been sent to Ponce, Porto Rico, where they are usefully employed.

The total expenditure for the purchase of all vessels of all classes has been as follows:

14 vessels on Atlantic coast.....	\$5, 431, 000
2 vessels on Pacific coast.....	800, 000
Tugs, barges, and lighters.....	245, 300
Total	\$6, 476, 300

Upon the cessation of hostilities in Cuba it became necessary, on account of sickness prevailing among the troops, to return General Shafter's army. The sick and wounded who were able to make the voyage were first considered in the matter of return, and these were brought to this country and placed in hospitals in the various coast cities. Montauk Point, Long Island, having been selected as a reception camp for the returning army, preparations were made for the safe and speedy landing of the troops as they arrived, and for the supplies required by them. For this purpose there were chartered eight small vessels and two flat boats, besides the steamship *Shinnecock*, 1,205 tons burden, which was employed to afford easy and comfortable transportation for the sick troops to other points where they might be sent for treatment. Upon breaking up of camp at Montauk these vessels were dispensed with.

INVASION OF PORTO RICO.

The reenforcements sent to General Shafter's army in Cuba, consisting of General Garretson's brigade, which sailed from Charleston, S. C.; a force of artillery from Tampa, Fla., and one regiment, the Eighth Ohio Volunteers, from New York City, arrived at Santiago just previous to the surrender of the Spanish army in that province, and their services were not needed. The Eighth Ohio Volunteers, being on the U. S. S. *Yale*, were disembarked, and the remainder of the command sailed to Ponce, Porto Rico, where it was disembarked. Other troops were dispatched to Ponce, viz:

General Ernst's brigade from Charleston, General Hains's brigade, General Schwan's brigade, General Grant's command, and eight batteries of artillery from Newport News, and Colonel Griffin's engineer regiment from New York, a total movement of about 16,000 men and 3,367 animals, with their artillery, equipments, and supplies, and a large quantity of ammunition and many army wagons.

Of these troops there have been returned to New York 5,581 men and 256 convalescents to Fort Monroe.

CANCELLATION OF CHARTERS.

As the chartered transport ships have arrived from Cuba and Porto Rico with returning troops orders were given for many of the vessels, upon the disembarkation of the troops, to proceed to their home ports for discharge from the service. A total of fifty-two vessels of the various classes have been discharged and returned to their owners, and others will be discontinued as rapidly as the interests of the service will permit.

EXPEDITIONS TO THE PHILIPPINE ISLANDS.

Seventeen of the large steamships on the Pacific and one large sailing vessel were chartered by the Department for the transportation of troops and supplies to the Philippine Islands, and two steamships have been purchased for this service.

The first expedition sailed from San Francisco, Cal., on May 25, under command of General Anderson, with 2,491 officers and men upon three steamships—*City of Sidney*, *Australia*, and *City of Peking*.

The second expedition, under command of General Greene, with 3,586 officers and men, sailed on June 15 on the steamships *China*, *Colon*, and *Zealandia*.

The third expedition, under command of General Merritt, with the command of General McArthur, consisting of 4,847 officers and men, sailed on June 25, 27, 28, and 29 on the steamships *Senator*, *Morgan City*, *City of Para*, *Indiana*, *Ohio*, *Valencia*, and *Newport*.

The fourth expedition, under command of General Otis, with 1,682 officers and men, sailed July 15 on the steamships *Peru* and *City of Puebla*, followed on July 19 by the steamship *Pennsylvania*, with 1,348 officers and men.

The last expeditions, under command of Gen. H. G. Otis, sailed on July 23 and 29 on the steamships *City of Rio de Janeiro* and *St. Paul*, with 1,735 officers and men.

These vessels have all arrived at Manila without mishap, and reports received show that the health and comfort of the men were maintained during the long voyage of over 7,000 miles.

The sailing ship *Tacoma*, with 30 enlisted men, 19 civilian teamsters, 210 horses and mules, 44 wagons and ambulances, and six months' supply of subsistence and forage, sailed from San Francisco on August 6. On August 21 the steamship *Arizona*, with 490 officers and men and 4 Red Cross nurses on board, sailed from San Francisco, and on August 29 the steamship *Scandia* sailed with troops for Honolulu and 173 officers and men for Manila.

The entire movements show that transportation was furnished from San Francisco to Manila for 16,405 persons, with their equipments and supplies.

TROOPS FOR HONOLULU.

Upon the acquisition of the Hawaiian Islands the First Regiment New York Volunteer Infantry was ordered to Honolulu for garrison duty. A contract was made for the transportation, at a per capita rate, of three companies of that regiment by a merchant vessel, 11 officers and 313 men, who sailed from San Francisco on August 18. The remainder of the regiment, 10 officers and 293 men, sailed for Honolulu on August 27 on the steamship *Scandia*, a vessel owned by the Quartermaster's Department, showing a total of 629 persons transported to Honolulu.

The total movements by transport ships up to September 15 have been as follows:

	Men.
To Cuba	28, 195
To Porto Rico	17, 460
To Manila	16, 405
To Honolulu	629
Returned from Cuba	21, 686
Returned from Porto Rico	5, 541
Civilian employees transported	2, 920
Total	92, 863

TRANSPORTATION OF SPANISH PRISONERS OF WAR.

Under the terms of capitulation for the surrender of Santiago de Cuba to the American Army, it was agreed that transportation should be fur-

nished by the United States Government for the Spanish prisoners of war to Spain and to provide subsistence to them while en route.

The Quartermaster's Department was directed to provide for carrying out the terms of this agreement. In response to public advertisements, proposals for the transportation from Santiago de Cuba to Cadiz, or to such other port of Spain as might be designated, for 1,000 commissioned officers and 24,000 enlisted men, and for their subsistence en route, were received and opened on July 20, 1898. Ten proposals were received, which were carefully considered, and the one submitted by an American citizen on behalf of the Spanish Trans-Atlantic Company was accepted, and contract entered into with that company for the transportation of all the prisoners of war, the commissioned officers to be provided with first-class cabin accommodations on the ships and the enlisted men with third-class or steerage passage, with suitable galley accommodations, conforming to the United States requirements as to space and ventilation for enlisted men, and to provide subsistence while en route equal to the garrison ration of the United States Army. The rates to be paid under the terms of the contract were for each commissioned officer \$55 per capita and for each enlisted man \$20 per capita, the men to be delivered on the ships by the United States.

The only other bid from responsible parties, and who represented steamship companies having facilities to carry out the contract, was the combined bid of the Anchor Line, Cunard Steamship Company, Limited; Hamburg-American Packet Company, Robert M. Sloman & Co., Frederick Leyland & Co., Limited; North German Lloyd Steamship Company, Royal Mail Steam Packet Company, Thomas Wilson Sons and Company, Limited; and Wilson & Furness Leyland Line, Limited, which bid was for officers \$110 and enlisted men \$55 per capita, steamers to be dispatched from Santiago de Cuba within forty-eight hours of their reported arrival or demurrage to be paid at the rate of 60 cents per capita per day, passenger capacity. If passengers are on board during such delay 40 cents additional per capita per day. Same demurrage rates to be paid if steamer be detained at place of debarkation by quarantine or other cause. "Will endeavor to have vessels at Santiago de Cuba between July 30 and August 10, 1898, but desire, if necessary, an extension of time to include the entire month of August."

As will be observed, this bid had demurrage conditions which would have amounted to a large sum in addition to the per capita, amounting for the actual number transported to \$1,312,915, whereas the contract entered into had no demurrage conditions, and the actual sum paid was \$513,860.

Mr. Solon F. Massey, agent Quartermaster's Department, was designated to superintend the embarkation under the general supervision of the chief quartermaster, Department of Santiago, and to report the number of officers and men which were put on board the vessels. The Government decided to include in the transportation the wives and children of the officers, and the priests and Sisters of Charity who had been in service in the hospitals and with the Spanish army.

The report of Mr. Massey states that the embarkation began on August 9, 1898, and was completed on September 17, 1898, and that 22,864 persons were embarked.

Mr. Massey states in his report that with the exception of the delay of eleven days in getting the Spanish prisoners from Baracoa and Sagua de Tanamo to Guantanamo, where the transport ships awaited them, the embarkation was expeditiously and satisfactorily accomplished; that he

inspected the ships and found all of them well arranged for the service they were engaged to perform and well equipped for the comfort of the men, and with ample quantities of food for the subsistence of the passengers for fifteen days and varied in quality; that three of the vessels were fitted out as hospital ships, viz, *Alicante*, *Cheribon*, and *San Ignacio*, which were well equipped for that service, with surgeons and assistants and modern appliances for the care and comfort of the sick. The cost for this service, as above stated, amounted to \$513,860.

WEEKLY STEAMSHIP LINE FROM NEW YORK TO CUBA AND PORTO RICO.

The permanent occupation of the islands of Cuba and Porto Rico by the Army has rendered necessary the transportation of large quantities of army supplies to those islands, and also the mails for troops. It was therefore determined to establish a regular weekly line of steamships to sail from New York to points in Porto Rico and Cuba and return to New York, for the transportation of supplies and mails for the Army, and also such officers, enlisted men, employees, and other persons who are entitled, by competent orders, to be furnished transportation by the Quartermaster's Department between those points. This line was opened Wednesday, August 31, 1898, on which date the steamship *Seneca* left New York with the Porto Rican Commission on board, sailing direct to San Juan, Porto Rico, where the commission disembarked and the vessel proceeded thence to Ponce, Porto Rico, and thence to Santiago de Cuba, at which places, after delivery of supplies and mails, she returned direct to New York with passengers and mails.

Since the sailing of the *Seneca* from New York a steamship has sailed from that port every Wednesday for Ponce, Santiago, and return, and it is anticipated that the fine transport ships now owned by the Department will be found amply sufficient to maintain this regular service and perform such other ocean transport service as is required for the maintenance of the armies serving in Porto Rico and Cuba.

TRANSPORTATION OF RELIEF SUPPLIES.

Large quantities of supplies have been transported by the Quartermaster's Department to Cuba for the relief of the people on that island, upon the request of the officers of the Red Cross Society, National Relief Association, and other kindred associations and individuals interested in the work of relief of the suffering Cubans.

Since the occupation of Santiago by the Army a large quantity of supplies belonging to the Red Cross Society and not needed at Santiago has been loaded on the chartered steamship *Clinton* and transported to Havana. The steamship *Comal* has been turned over to the Subsistence Department of the Army, and is engaged in the transportation of relief supplies to Havana and Matanzas.

ASSIGNMENT OF OFFICERS TO DUTY ON QUARTERMASTER'S TRANSPORTS.

The transport service of this Department for the transportation of troops and supplies by sea assumed large proportions soon after actual hostilities began. It became necessary and important, in order that this service be made effective, to assign an officer of the Army on the transports which were purchased by the Government. The officers so assigned, to a large extent, were volunteer quartermasters, who in the performance of their duty acted for both the Quartermaster's and Subsistence departments.

BARRACKS AND QUARTERS.

Congress, by act approved March 2, 1897, appropriated the sum of \$750,000 under head of "Barracks and quarters," and in the deficiency act of May 4, 1898, an additional sum of \$300,000, making a total of \$1,050,000 available for construction.

The sum of \$763,275.61 was expended during the last fiscal year in the construction and repairs of barracks, officers' quarters, storehouses, for camping grounds, and for rent.

The sum of \$74,816.84 was expended during the fiscal year for construction and repair of hospitals at military posts, which includes a post hospital at Fort Hamilton, N. Y., costing \$16,522; one at Fort Hancock, N. J., costing \$18,810.50; and an addition to hospital at Fort Wayne, Mich., costing \$12,357.

MILITARY POSTS.

In the act of Congress making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1898, there was provided "for the construction of buildings at and the enlargement of such military posts as in the judgment of the Secretary of War may be necessary, the sum of \$420,000, of which not less than \$50,000 shall be expended at the military post at Spokane, Wash. And the Secretary of War may, in his discretion, use not to exceed \$20,000 of said sum to purchase the former post trader's buildings at Fort Assiniboine, in Montana."

Twenty thousand dollars has been, in accordance with this law, expended for purchase of buildings at Fort Assiniboine, leaving \$400,000 available for construction. This sum has been apportioned as follows:

Fort Ethan Allen, Vt	\$69,933.60
Fort Point, Tex	35,410.00
Fort Hamilton, N. Y	125.00
Fort Hancock, N. J	3,823.00
Fort Harrison, Mont	30,000.00
Jefferson Barracks, Mo	92,528.34
Fort Myer, Va	95.00
Plattsburg Barracks, N. Y	94.60
Plum Island, New York	43,338.96
New post near Seattle, Wash	50,000.00
New post near Spokane, Wash	55,532.00
Fort Wayne, Mich	100.00
Willels Point, N. Y	17,098.40
Balance June 30, 1898	1,921.10
Total	400,000.00

FORT ETHAN ALLEN, VT.

There has been constructed at this post one double barrack, three double sets officers' quarters, all of brick, with plumbing, heating, and gas piping for same; also two cavalry stables and plumbing for same.

NEW POST NEAR SEATTLE, WASH.

There are being constructed at this post one double barrack, one double set captains' quarters, one double set lieutenants' quarters, one quartermaster and subsistence storehouse, and two double sets non-commissioned staff officers' quarters, all of wood, with plumbing and gas piping for same; also one bachelor officers' quarters of brick, and necessary plumbing, heating, and gas piping.

JEFFERSON BARRACKS, MO.

There has been contracted for and completed at this post one set of commanding officers' quarters, five double sets of officer's quarters, and three double barracks, all brick, including plumbing, heating, and gas piping for same.

NEW POST AT FORT POINT, TEX.

At this post there has been contracted for, to accommodate one battery of artillery, two double sets of officers' quarters, one double set noncommissioned staff officers' quarters, one barrack, one administration building, one guardhouse, one quartermaster and subsistence storehouse, one stable and wagon shed, and one shop, all of wood.

FORT HARRISON, MONT.

This post is being enlarged by the addition of one set commanding officer's quarters, one set noncommissioned staff officers' quarters, and one band barrack, all of brick, with necessary plumbing, heating, and gas piping.

NEW POST AT PLUM ISLAND, N. Y.

Buildings are being constructed at this post for the accommodation of a battery of artillery. These buildings consist of two double sets of officers' quarters, one double set noncommissioned staff officers' quarters, one barrack, one administration building, guardhouse, quartermaster and subsistence storehouse, stable, and shop, all of wood.

MILITARY POST AT SPOKANE, WASH.

This post is being completed for two companies by the erection of an administration building, quartermaster's stable, quartermaster and subsistence storehouse, guardhouse, hospital, hospital stewards' quarters, magazine, and shop, all of brick. Plumbing, heating, and gas piping provided in such of the buildings as required. Also a wood coal shed.

WILLETS POINT, N. Y.

There is being built at Willets Point, N. Y., one three-company mess hall and kitchen, with heating and plumbing, costing \$18,724.36.

WATER SUPPLY, SEWERAGE, ETC.

From the appropriation for army transportation the sum of \$298,175.60 was expended during the fiscal year for water supply, sewerage, plumbing, and drainage; \$73,417.28 for roads, walks, grading, bridges, etc.; \$15,572.92 for wharves.

From the appropriation for regular supplies, the sum of \$103,956.18 was expended for lighting, heating, and cooking apparatus.

CAMPS FOR THE TROOPS.

During the war, camps were established for military purposes at Tampa, Fla.; Mobile, Ala.; Camp George H. Thomas, Ga.; Camp Alger, Va.; Camp Poland, Knoxville, Tenn.; Jacksonville, Fla.; Miami, Fla.; Fernandina, Fla.; Camp Wikoff, N. Y.; Camp Hamilton, near Lexington, Ky.; Camp George G. Meade, Pa.; Camp Wheeler, Huntsville, Ala.;

and Camp Shipp, Anniston, Ala. All necessary temporary storehouses, hospitals, and other buildings were erected or hired, and tents floored. Water facilities were arranged for either by driven wells, pumping plants, or by connecting camps with city water mains. To insure a supply of good water many of the camps were furnished with a number of approved portable filters, and one with boilers for boiling water.

During the latter part of April, 1898, five buildings were rented at Key West, Fla., for a general hospital. An office and storeroom were also rented and temporary buildings constructed for kitchen, dining room, closets, etc., and a water-supply system, including distilling plant, installed for the hospital and post at Key West Barracks, Fla., at an approximate cost of \$20,682.25.

Many of the buildings at Fort McPherson, Ga., Fort Myer, Va., and Fort Thomas, Ky., were used as general hospitals.

On July 3, 1898, instructions were given for the erection of tents and temporary buildings on the Fort Monroe (Va.) reservation, for a general hospital to accommodate 500 patients and 100 attendants. The work was completed July 23, 1898, at a cost, exclusive of tents, of \$5,016.12.

On July 20, 1898, the Secretary of War authorized the establishment, near Fort Monroe, Va., of a pavilion hospital of 1,000 beds. A tract of land on the line of an electric railway, about 2 miles from the post, was leased, at \$500 per annum, and on this site the following buildings and improvements are in course of completion, the cost to September 30, 1898, being reported as follows:

Main buildings	\$40,500
Covered way	4,000
Plumbing and water and sewer system	17,293
Electric-lighting system	1,592
Laundry machinery	2,370
Side tracks, etc	1,287
Roads	640
Quarters for female nurses and medical officers	14,700
Plumbing same	3,039
Electric lighting same	235
Garbage cremator	1,456
Miscellaneous	3,164
Total	90,276

The sum of \$20,000 was authorized for a distilling plant at the Philippine Islands, including machinery for taking water from a tower to a higher level and providing larger camps with water from one or more sources of supply.

RESERVATIONS.

Under act approved July 8, 1886, forty-five lots, comprising part of old Fort Brady, Mich., have been sold at public and private sale, and the sum of \$39,100 realized therefrom. Nineteen lots still remain unsold.

The sum of \$7,398 has been realized from the sale of lots comprising old Fort Bliss, Tex. The act of August 9, 1894, provided that so much of the receipts from the sale of this reservation, not to exceed \$4,000, are appropriated for the construction of a military road between the city of El Paso and new Fort Bliss, Tex., and accordingly a contract was made for said road, at a cost of \$3,976.77.

Under act approved March 2, 1895, the citizens of Seattle, Wash., have finally tendered an acceptable site to the War Department for the establishment of a military post thereon, which included certain tide lands and right of way for wharf convenience. The title has been reported upon favorably by the Department of Justice.

Some 1,100 acres of land have been secured under the acts of Congress approved June 11, 1896, and July 7, 1898, for target range for use of troops stationed at Jefferson Barracks, Mo.

FIELD FILTERS.

The question of providing good water for the troops by the means of a field filter was made the subject of early and careful consideration. On the recommendation of the Surgeon-General of the Army, the Secretary of War authorized the purchase of 3,000 filters of special pattern, of the Berkefeld-Maignen and Pasteur-Chamberland manufacture, at a cost of \$69,100. These filters were distributed to the various military camps.

NATIONAL CEMETERIES.

There are 83 national cemeteries and 75 superintendents. The interments therein to June 30, 1898, were 337,296.

Ten thousand white marble headstones were provided during the fiscal year to mark the graves of known Union soldiers, sailors, and marines in national, post, city, and village cemeteries.

The roadway authorized by act of Congress approved June 8, 1896, from north side of Cache River Bridge, in Pulaski County, Ill., to connect with the graveled road running from Mound City, Ill., to the Illinois Central Railroad, in said county, has been completed, at a total cost of \$14,995.87.

Under the act of Congress approved June 4, 1897, the work of construction of extension of Phelps Boulevard, the Government road from Springfield, Mo., to the national cemetery near that city, was completed, at a total cost of \$2,230.60.

The sum of \$5,159.66 was expended during the fiscal year for repair of roadways which have been constructed by special authority of Congress.

Under a special appropriation of \$15,000 made by Congress by act approved January 28, 1898, contract was made for rebuilding the lodge and outbuildings, providing the necessary water supply and drainage, reconstructing the inclosing wall, providing gates, etc., at Fort Smith (Ark.) National Cemetery. The work is now in progress.

At Cavehill (Ky.) National Cemetery an addition of 2,366 square feet of ground adjoining the cemetery grounds was donated to the United States by the Cavehill Company, of Louisville, Ky., for the purpose of erecting therein a permanent rostrum. This addition was accepted by the Department, and the rostrum completed on May 19, 1898.

During the year all necessary improvements and repairs have been made at the various national cemeteries and the grounds kept in good condition.

GRAVES AT SANTIAGO.

On August 6, 1898, the President ordered that the graves of our soldiers at Santiago should be permanently marked, stating that the present marking will last but a short time, and before its effacement suitable and permanent markers should be put up.

On August 10, 1898, upon receipt of the above order from the Secretary of War, the chief quartermaster at Santiago, Cuba, was instructed by cablegram to take immediate steps to erect temporary markers and prevent effacement of any markers erected at soldiers' graves at Santiago.

On August 23, 1898, Mr. D. H. Rhodes, a capable and reliable employee of this Department, was sent to Santiago, Cuba, by this office, with directions to report to Maj. Gen. H. W. Lawton, commanding that department, for the specific duty of erecting suitable markers at the graves of our soldiers at Santiago and vicinity. He was especially instructed to ascertain the exact location of our dead, securing, if possible, the names, ranks, companies, regiments, and dates of death of all soldiers buried there, also names and dates of death of employees and other American citizens who had been interred there since the army landed in Cuba, making a complete record thereof, and take prompt measures for the erection of wooden markers at said graves until permanent ones could be supplied. Mr. Rhodes was further directed to make such examination of this subject as to be able to report and identify the burial place of every United States soldier and American citizen buried at Santiago and vicinity, and at the same time prepare a complete record of every case showing exact location of each burial site, in order that the identification of the place of burial of all our soldiers and citizens can hereafter be ascertained with accuracy. Mr. Rhodes reported his arrival at Santiago on August 31, 1898, and upon completion of this important work will submit full and detailed report to this office.

Under the act of Congress approved July 8, 1898, the sum of \$200,000 was appropriated to enable the Secretary of War, in his discretion, to cause to be transported to their homes the remains of officers and soldiers who die at military camps, or who are killed in action or who die in the field at places outside of the limits of the United States.

No definite plans have yet been formulated by the Department in regard to the removal of the remains to the United States, but the subject is under consideration.

ORGANIZATION.

Soon after the declaration of war it became apparent that the very large volume of business in the office of the Quartermaster-General and in the Quartermaster's Department at large could not be efficiently performed without a rearrangement in the assignment of the various departments of duty.

Congress on July 7, 1898, passed an act "to increase the efficiency of the Quartermaster's Department of the Army," which authorized the Secretary of War to make such distribution of the duties and labors of the Quartermaster's Department, as well as the assignment of its officers to important and special lines of duty, as might be deemed for the best interests of the service.

Under the provisions of the above-mentioned law this Department has been enabled to largely increase its efficiency by a proper distribution of the work, and a more advantageous assignment of its officers.

CHICKAMAUGA PARK, GEORGIA.

Col. J. G. C. Lee, assistant quartermaster-general, U. S. A., an able, experienced, and efficient officer, was chief quartermaster at Chickamauga Park, Georgia, where he assumed duty on April 19, 1898, and arranged for the reception and care of the large body of troops camped at that place. He continued on this duty until the camp was broken up. The duties and responsibilities devolving upon him were very exacting.

While there he arranged for the transportation of 70,734 officers and men, 8,366 horses, 6,673 mules, and 1,490 carloads of freight, and also attended to the reception and distribution of a vast amount of quartermaster, subsistence, and medical supplies. There were also purchased under his direction 1,839 horses and 2,880 mules.

NEW ORLEANS, LA.

Col. J. W. Scully, assistant quartermaster-general, U. S. A., stationed at New Orleans, La., also an experienced officer of this Department, performed important service at that station in selecting camps for the troops in that vicinity, inspecting transports with a view to charter, loading and unloading transports, fitting them out, besides the numerous other duties pertaining to the Quartermaster's Department at that station.

MOBILE, ALA.

Lieut. Col. J. W. Pullman was the officer of this Department on duty at Mobile, Ala., where he arrived on April 18, 1898. He performed the duties required of him pertaining to the supplying of the Fourth Army Corps while in that vicinity, besides giving careful attention to the fitting out of a number of Government vessels at that port.

CHICAGO, ILL.

Lieut. Col. F. B. Jones, chief quartermaster, U. S. Volunteers, was acting chief quartermaster, Department of the Lakes, Chicago, Ill., which duty he assumed on April 19, 1898. During the war Chicago was one of the principal points for the purchase of clothing and equipage, means of transportation, and various other articles of quartermaster supplies.

ARTILLERY SIEGE TRAIN.

Capt. Thomas Swobe, assistant quartermaster, U. S. Volunteers, was on duty as quartermaster with the artillery siege train at Tampa, Fla., from June 20 to August 21, 1898. This train consisted of 116 army and 55 escort wagons, 4 ambulances, 950 mules, and 12 horses belonging to the Quartermaster's Department, and 740 artillery horses.

NEW YORK DEPOT.

This depot is in charge of Col. A. S. Kimball, deputy quartermaster-general, U. S. A., who is assisted in the performance of the important duties pertaining to this station by Maj. J. W. Summerhayes, quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), who has charge of inspection of vessels and fitting out transports; Capt. I. W. Littell, assistant quartermaster, U. S. A., who has charge of the supply distribution and manufacture of clothing and camp and garrison equipage; Capt. Wirt Robinson, assistant quartermaster, U. S. Volunteers (first lieutenant, Fourth Artillery) has charge of transportation matters.

From April 1, 1898, to September 1, 1898, transportation was provided from this depot for 1,629 officers and 33,902 enlisted men.

Colonel Kimball's report shows that at the beginning of the war, in order to supply the immediate needs of the troops, large quantities of clothing material had to be purchased, and that in two weeks' time

100,000 blouses and trousers were manufactured and ready for delivery. The business at this depot was vastly increased during the war, but all demands were promptly and efficiently met by the officers on duty thereat.

ST. LOUIS DEPOT.

This depot is under the charge of Col. G. U. Smith, deputy quartermaster general, U. S. A., assisted by Maj. Charles A. Booth, quartermaster, U. S. A. All the business of this depot, including the manufactures and issues, was transacted promptly and efficiently.

In addition to the other expenditures 1,718 horses and 16,472 mules were purchased under the direction of Colonel Smith, who was assisted in this work by Maj. Thomas Cruse, quartermaster, U. S. Volunteers.

PHILADELPHIA DEPOT.

Col. J. V. Furey, deputy quartermaster-general, U. S. A., is in charge of this important depot of supply. He was assisted in his work by Lieut. Col. F. H. Hathaway, Maj. C. A. H. McCauley, and Capt. G. S. Bingham, of the Quartermaster's Department, U. S. A.

When war was declared this depot had ample supplies on hand to meet the requirements of the Regular Army, but the increase of troops on a war footing required extraordinary service to supply a force ten times greater than the established force on a peace footing. From the commencement of hostilities to the present date the officers and employees on duty at this depot have been engaged day and night to receive, issue, and ship supplies to the troops. Every department of work at this large depot was taxed to its utmost. The cutting department, where the garments are cut and prepared, has been largely increased, to the extent that the output is beyond 3,000 garments daily. Most of these articles are given out to sewing women, who numbered some 1,100 before the war, and now range in numbers between 4,000 and 5,000.

Tentage for troops exacted all the resources of the depot, so much so that it was found imperative to secure their manufacture elsewhere. Difficulty was experienced at first in securing the making of shelter tents. This, however, was overcome and deliveries in large quantities were daily supplied.

The transportation of troops and supplies, so far as came within the jurisdiction of this depot, was promptly met and well provided for.

JEFFERSONVILLE DEPOT.

This depot was under the charge of Col. Charles W. Williams, deputy quartermaster-general, U. S. A., assisted by Lieut. Col. Charles R. Barnett, quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.).

Upon the breaking out of the war ample stores were on hand at this depot to meet all the requirements of the Regular Army in time of peace. The demands of the greatly increased military forces, however, made it absolutely necessary that large purchases of supplies be immediately made and the promptest possible delivery secured. Every resource of this depot was greatly taxed to meet the increased demands. It at once became necessary to enlarge all the departments of work upon a broader scale in order that the increased volume of business could be promptly handled.

An examination of the report of purchases, manufactures, and issues made at this depot from April 21 to August 15, 1898, shows a very large increase over the amount of work usually handled there, which required the most exacting service of the officers and employees. During the brief period of the war the shipments from this depot amounted to 6,409,298 pounds. The total number of articles shipped was 3,900,071.

SAN FRANCISCO DEPOT.

This depot is under the charge of Lieut. Col. Oscar F. Long, of this department. Under his careful attention all the troops concentrated at San Francisco and vicinity, from all parts of the Union, were promptly equipped and furnished with all needful quartermaster supplies. The fitting up of all the Government transports for use of the expeditionary forces to the Philippine Islands was promptly attended to by the officer in charge of this depot. The purchases and issues made at this depot from the beginning of the war to the close of hostilities were very large.

Lieutenant-Colonel Long states:

The organization of the depot previous to the present emergency provided for the supply of 3,000 men, ample time for preparation in securing the same having been allowed in times of peace; suddenly, without warning, the call for troops, their mobilization, and transportation to this point in large numbers necessitated energetic action to meet the demand, the supply for which was unprecedented and the calls for which were urgent, requiring immediate action.

Regiments, battalions, and detachments arrived from twenty States and Territories of the Union, some even without shoes and wearing bandanas in lieu of hats—without tentage, with nothing for comfort, and even without the few necessities which suffice for the simple needs of the soldier.

The field of supply of this depot was rapidly enlarged and, now that the emergency has passed, a consideration of the records shows that we have supplied with clothing and equipage, perfectly, properly, and completely, in accordance with law, orders and regulations, in filling approved requisitions, 31,198 troops—regulars and volunteers—destined for Cuba, Manila, Honolulu, and Alaska.

This depot has prepared for service and dispatched for Manila 21 transports chartered by the Government, a distance of 7,259 miles—one of the longest transport services recorded in military history—all of the troops being transported safely, without the loss of a life, for which the Quartermaster's Department can be held responsible.

The transports were provided with every modern convenience which intelligent foresight or thought could secure for the welfare and comfort of the troops, and the arrangements were carried out under the supervision and inspection and with the assistance of expert seamen and, in many instances, of naval officers. The sanitary arrangements and air space were indicated by Army medical officers, and the number of troops transported was the subject for orders of the commanding officers of the expeditionary forces. No mistake in this regard was made here attributable in the slightest degree to the Quartermaster's Department.

WASHINGTON DEPOT.

Maj. T. E. True, of this Department, is the officer in charge of this depot. Soon after the declaration of war the work increased so rapidly that it was found necessary to procure enlarged quarters for the proper transaction of the public business; accordingly, on July 25, 1898, his office was removed to the building on the southwest corner of Seventeenth and F streets (known as General Grant's old headquarters).

The work at this depot was augmented very largely during hostilities, and to properly dispatch the large volume of business required the most exacting services on the part of the officer in charge and his corps of employees. During the brief period of the war the shipments from this depot amounted to 28,940,406 pounds.

QUARTERMASTER'S DEPOT, BOSTON, MASS.

This depot is in charge of Maj. John McE. Hyde, (captain and assistant quartermaster, U. S. A.), who rendered zealous service.

The work at this depot during the war increased fourfold, and includes the purchase of considerable quantities of clothing, and large office and storage accommodations became necessary in order to meet the requirements of the service.

TAMPA DEPOT.

On April 16, 1898, Maj. J. W. Pope, quartermaster, U. S. A., was assigned to duty at Tampa, Fla., and had charge of the affairs of the Quartermaster's Department there until May 18, 1898, when he was transferred to San Francisco, Cal., for duty at Manila. Col. C. F. Humphrey, deputy quartermaster-general, U. S. A., arrived at Tampa, Fla., May 1, 1898, and on the 18th of that month assumed general supervision of the quartermaster's depot at that place, and of ocean transportation at Port Tampa, and on the same date Capt. J. B. Bellinger, assistant quartermaster, U. S. A., relieved Major Pope of his depot duties.

The very rapid concentration of troops there, as also of large quantities of supplies, made it extremely difficult at first to receive and assort the supplies and equip the troops.

The railroad situation was very unsatisfactory on account of a congestion of cars, due to the large quantity of supplies of all the Departments thrown in at that point in a short space of time, and it required several weeks to entirely relieve the situation.

In a period of four months this depot handled over 13,239 carloads of freight, all of which were either loaded or unloaded by employees of the depot. Besides the handling in this short space of time this large number of freight cars and their contents, must be considered the great number of cars handled by the depot in a much less time while transporting some 66,000 troops, with their baggage and over 15,000 animals.

Some 1,500 pack animals were received and issued at this depot.

Repair shops were established and wheelwrights, blacksmiths, and saddlers were kept continually at work repairing wagons and harness. This expedited the business very much and resulted in much saving to the Government.

Storehouses were secured as rapidly as needed and filled with supplies, the issuing being expedited as much as possible. Issues were made daily, Sundays included, from 7 a. m. until 7 p. m., and late into the night work would be carried on in order to prepare for the issues of the next day. No technicalities were permitted to cause delay in issuing the supplies to the troops.

A résumé of the work done by the Quartermaster's Department at Tampa in the short space of four months is as follows:

Army corps equipped	2
Freight cars handled (loaded or unloaded)	13, 239
Officers and men transported	66, 478
Horses and mules transported	15, 309
Horses and mules received	11, 389
Horses and mules issued	9, 919
Wagons "set up"	604
Teams "broken out" (six mules)	141
Teams "broken out" (four mules)	520
Pack trains equipped	21
Wagons and ambulances repaired	699
Transports fitted out	33
Transports cleared	78

DUNN LORING, VA.

Lieut. Col. M. C. Martin, quartermaster, U. S. Volunteers, in addition to his other duties was placed in charge of the temporary depot at Dunn Loring, Va., from which the troops encamped at Camp Alger were supplied with all necessary quartermaster stores. He was assisted in his duties by Capt. James R. Hosmer, assistant quartermaster, U. S. Volunteers.

In connection with this depot there was also established a sub-depot at St. Asaph, Va., under the direct charge of Capt. E. H. Parsons, assistant quartermaster, U. S. Volunteers. The site selected for this sub-depot consisted of an unused race track near Alexandria, Va., containing about 40 acres. It is used as a corral and transportation depot where mules and horses are cared for and wagons and other means of transportation stored, repaired, and shipped. Since the declaration of war 6,000 mules and 614 horses were handled at this sub-depot, and 1,075 wagons were received, repaired, and issued.

TAMPA, FLA., AND SANTIAGO DE CUBA.

Col. C. F. Humphrey (now brigadier-general, U. S. Volunteers), chief quartermaster, arrived at Tampa, Fla., May 1, 1898, and the following day, at the request of General Shafter, took charge of the quartermaster's department at that place, so far as pertained to the fitting out of the expedition to Cuba. The same day he was placed in charge of the quartermaster's department at Tampa by telegraphic order from the honorable the Secretary of War.

Colonel Humphrey accompanied General Shafter's expedition to Santiago and attended to the unloading of the transports at the latter place. His work at both Tampa and Santiago was of the most important and laborious character, and was efficiently administered. He remained at Santiago until August 28, after the last troops of the expedition ordered north had embarked. With his report he submits a number of interesting and valuable statements in reference to the vessels belonging to or used by General Shafter's expedition to Cuba; also of the foreign vessels used to transport the Spanish prisoners of war to Spain. These statements are on file in this office.

Colonel Humphrey reports that transports began to arrive at Port Tampa early in May, and as fast as reported were fully coaled and watered and policed, and later fitted with bunks and stalls for the comfort of men and animals. The loading of the transports began at once, and was carried on speedily and systematically. This was, at best, difficult, owing to the limited wharf facilities. The place affords, in all particulars, most insufficient facilities for fitting out the many ships and embarking so large a force. The loading of all classes of stores was completed at 11 a. m. of June 6, and by 9 p. m., June 8, the troops were all on board and the expedition was fully embarked. The departure, however, was delayed until June 14, by reason of a report made by the naval authorities that the Spanish war vessels were seen in Nicholas Channel. The transports when sailing were in good order, but not in so prime condition as when the troops and animals were embarked.

The expedition arrived off the coast of Cuba, in the vicinity of Santiago, June 20, and debarkation began on the 22d at Daiquiri, some 17 miles east of Santiago. The debarkation of the infantry and cavalry from transports was completed by the night of the 23d. The

light artillery and battalion of heavy artillery were debarked two or three days later; and the troops of General Kent's division on the *City of Washington*, *Saratoga*, and *Santiago*, at this time lying some miles off the mouth of the harbor at Santiago, were debarked at Siboney by the 27th of the month. As soon as the debarkation of the troops was well under way the landing of the pack trains and pack equipage was begun and continued during the night and the following day until all the men, animals, and equipage were ashore. Then the draft mules, harness, teamsters, etc., were landed, followed by the landing of the rations, small arms, ammunition, light artillery and cavalry horses, harness, horse equipment, artillery carriages, artillery ammunition, and men. The landing of wagon transportation was then begun and pushed to the limit.

Many of the troops, however, debarked themselves in boats belonging to their ships during the two days and subsequent to 6 p. m. both days, at which hour the Navy hauled off and returned to their ships. "I can safely say that the men could in all cases have debarked themselves, as we had 153 boats capable of carrying ashore 2,500 men and equipments at one time." Besides the expedition's small boats, it had the steam lighter *Laura*, capable of easily carrying half a regiment at a time, and in which work it was employed during the two days of debarkation. This vessel was by far the most expeditious and comfortable means employed; and, furthermore, had it been necessary the *Cumberland* and *Manteo*, both light-draft steamers, would have been utilized for this service. The debarkation of troops was not at all difficult when compared with the work incident to the landing of animals, and especially in landing of war material and supplies belonging to the expedition.

Five small boats were wrecked in landing or endeavoring to land troops. Two of these were boats belonging to and manned by the Navy.

The landing of the animals was difficult and tedious, owing to the high surf and rough sea. It was not possible to land them at the wharf, even if time had permitted. They were therefore run overboard with halters and ropes on and led ashore by men in small boats. Often the animals would take a different course away from the boats, preventing rowing or steering, and causing confusion and the temporary loss of the animals. In all cases where animals got loose from a boat, and often when they had passed through the surf to firm footing where men were ready to receive them, they would turn back and swim out to sea, and in some instances the animals were drowned.

Had it not been for the failure of the steam-lighter *Bessie* to join, the desertion of the tugboat *Captain Sam*, and the loss of a decked-over lighter, the expedition would have been fairly well supplied for debarking the troops, lightering supplies, etc., of the expedition, and more satisfactory and expeditious results would have been accomplished.

The road leading from Daiquiri to Siboney and thence to Santiago was scarcely more than a trail, though it had been in use by the natives for centuries. That part between Siboney and Santiago was particularly bad, as it passed over a range of high ground and through depressions, ravines, water courses, and small rivers. There were no bridges. The road required a great deal of work to make it of any use. Being exceedingly narrow, turn-outs had to be made at intervals to provide for the passing of teams and pack trains. With the use of the road when wet it became impassable in many sections, and new road was cut through brush and timber where possible. The time given to the

improvement of the road by the United States engineers was very considerable, resulting in the material improvement of the old road by corduroying with brush, filling depressions, removing bowlders, bridging streams, cutting through woods, and roughly making new road in part. With all this work done upon it, however, it was at no time in really good order, and a part of the time, as stated, was all but impassable, thus rendering it most difficult to meet the demands from the front. The moving of pack and wagon trains leaving Siboney and the front had to be timed, and with all care possible temporary blockades occurred, especially when the sick and wounded were being brought to the rear. Difficulties were also experienced in supplying the troops and animals at the front, owing to the lack of experienced teamsters. The pack-train teams were manned at first by civilians, but they rapidly fell sick, and their places had to be filled by soldiers, not always skillful in this work.

All the transports were taken into Santiago Harbor July 18, and by August 1 fifteen of them had been unloaded and sent North.

On August 4 orders were received to ship the expedition North, which was done with great dispatch, and it should be stated here that all these vessels were inspected and reported in good condition for the service required by Dr. Ives, chief surgeon First Division, Fifth Army Corps. It should be understood that many of the vessels had to be coaled, still many more watered, and nearly all required ice.

The work done by the Department throughout the campaign (beginning at Tampa) was enormous. There was no rest by day and none often by night, and, while much did not run as well and smoothly as it would have done at a later period, the expedition fulfilled its mission exceedingly well. The tabulated statements show in part what was accomplished, but no statement of the kind, however elaborate, could adequately show the actual work performed.

Colonel Humphrey states further that he did not leave Santiago until the last troops for duty of the expedition ordered North had embarked. All the sick had preceded him, except some 400 which the chief surgeon desired to remain behind.

Capt. Charles J. Goff, assistant quartermaster, U. S. Volunteers, was sent to Cuba on the steamer *St. Paul*, with a large supply of clothing and other quartermaster supplies, to report to General Shafter to establish a quartermaster's depot at such place as he might designate. The *St. Paul* sailed from New York on July 6, 1898, and arrived off Siboney, Cuba, July 10, 1898. The vessel was not discharged then, but the supplies were transferred July 15 to 17 at Guantanamo Bay to the small steamship *Comal*, which was held there until after the surrender, when she was anchored in the stream at Santiago de Cuba July 21, and in a few days thereafter issue of supplies to the troops commenced.

Lieut. Col. J. W. Jacobs, chief quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.), relieved Colonel Humphrey, and was assigned as chief quartermaster, Department of Santiago, Cuba. Lieutenant-Colonel Jacobs served in that capacity until October 11, 1898, when by reason of sickness he returned to the United States. This left the transaction of the business pertaining to the quartermaster's department at that place in the hands of Maj. John T. Knight, depot quartermaster, and of Capt. Alfred M. Palmer, assistant quartermaster, U. S. A., who are assisted by Captains Scott, Barker, and Gonzales, volunteer quartermasters.

DEPOT AT PONCE, PORTO RICO.

Lieut. Col. J. W. Pullman, quartermaster, U. S. A., sailed from Tampa, Fla., on the steamer *Rita* on August 15, 1898, for Ponce, Porto Rico, with a full supply of quartermaster stores, employees, etc., for the purpose of establishing a quartermaster's depot at that place, from which to issue all necessary supplies required by the troops operating there. He arrived at Ponce on August 22, 1898, and established a temporary depot at that place.

The construction of a landing pier there, extending from the shore out into the harbor a distance sufficient to reach a depth of 6 feet, was directed by General Miles and probably has been completed by this time. The water in this harbor deepens very slowly from the shore out, and ships drawing from 12 to 20 feet have to anchor from one-half to three-quarters of a mile from shore.

Lieutenant-Colonel Pullman reports that there are no docks in Porto Rico suitable for docking ships, and at St. Thomas, the nearest point, there are dry-dock facilities, but the charges are very exorbitant.

DEPOT AT HONOLULU.

Lieut. Col. George Ruhlen, quartermaster, U. S. Volunteers (captain and assistant quartermaster, U. S. A.), is the officer of this Department who has been assigned to duty as depot quartermaster at Honolulu, where he arrived on August 28, 1898.

Lieutenant-Colonel Ruhlen reports that he has secured the necessary office rooms and storehouses for use of department headquarters and depot, and also about 15 acres of ground for a corral. He has organized and placed in service the Government mules and wagon transportation.

Arrangements have been made under which the Oahu Railway and Land Company, whose line is in operation from Honolulu to Waialula, a distance of 56 miles, will accept the regular Quartermaster's Department transportation requests for passenger service and Government bills of lading for freight service over their lines at their regular passenger and freight tariffs.

A building has been secured and ground surrounding it for general hospital. The building has been remodeled and enlarged, so that it now affords accommodations for 100 patients.

Upon the recommendation of the medical officers, galvanized iron boilers for boiling all the drinking water used by the troops were provided.

Lumber for flooring all the tents in both camps has been furnished, and the work is nearly completed. Temporary sheds for sheltering stores at the camp and at the quartermaster's corral have also been erected.

Arrangements have been made with local undertakers for the interment of the remains of deceased soldiers who died under treatment at the general hospital here. Up to this date 9 have been buried. They are all interred in a space specially set aside for the purpose in a local cemetery. Arrangements are being made to set up at the graves temporary wooden headboards, and a plat of the cemetery will be made for record.

The only resources of the country for building material are stone and sand. The stone is a very hard and brittle volcanic rock or lava, resembling in color blue limestone and in texture a very hard, gritty limestone.

Everything else requisite for construction work, except stone and sand, will have to be imported from the Pacific coast. The lime used is brought from California, but the cement is imported Portland, brought usually as ballast in sailing vessels direct from Europe. No bricks are made, those in use having been brought in ships as ballast from the Pacific coast. A limited quantity of lumber is kept on hand in local yards, but the whole supply in Honolulu to-day does not probably exceed 1,000,000 feet of all kinds. The price for which it is sold is not unreasonably high.

All the water heretofore used by the troops in camp and at the quartermaster's corral is that furnished by the city water-supply plant. The source of supply is artesian wells, found everywhere on this island; the water-bearing sand or gravel stratum being encountered at a depth of from 200 to 300 feet below sea level, and the water usually flows to the height of 32 feet above sea level when confined in tubes. Almost the entire irrigation system of the Island of Oahu is supplied with water from these artesian wells. The water obtained from these wells appears to be pure and free from any objectionable taste.

MANILA, PHILIPPINE ISLANDS.

Lieut. Col. J. W. Pope, chief quartermaster, U. S. Volunteers (major and quartermaster, U. S. A.), is the chief quartermaster at this station.

Owing to length of time required for mail communication no detailed report of operations of the Quartermaster's Department in the Philippine Islands has as yet been received.

OCCUPATION OF CUBA BY UNITED STATES FORCES.

Officers of this Department have been ordered to duty at Havana, Matanzas, Nuevitas, Gibara, Cienfuegos, and Manzanillo, Cuba, with a view to making every preparation possible for the United States troops previous to their arrival at the places named.

POST QUARTERMASTER-SERGEANTS.

The number of post quartermaster-sergeants in service at the beginning of the war being inadequate, Congress, by act approved July 8, 1898, provided for the appointment of 25 additional sergeants, and as rapidly as capable and suitable sergeants could be selected, appointments were made, so that there are now 99 of these sergeants in the service, who have been assigned to duty where their services are most urgently needed. The 6 remaining vacancies will be filled at an early date.

CONCLUSION.

In concluding this report, I desire to state that this office, during the war, has constantly kept in view the fact that the all-important duty devolving upon this Department was to provide for and promptly furnish the Army with all needful quartermaster supplies. For months the most energetic efforts have been made to the accomplishment of this purpose. Practically everything needed for the largely increased Army had to be purchased or manufactured and then transported to the numerous camps.

At the commencement of hostilities the regular establishment of this Department did not afford enough officers of experience to meet all the requirements of the extraordinary situation with which the Department was so suddenly confronted. Important problems had to be considered and solved, large business transactions had to be quickly concluded in order that the troops could be promptly equipped and hurried into the field, but notwithstanding all the difficulties it is believed that the Army has been well provided for. In this connection it should be remembered that within the few months of hostilities the military operations extended to such distant points as Santiago, Porto Rico, Honolulu, and the Philippines, where all needful quartermaster supplies for the Army have been promptly forwarded.

I feel deeply indebted to the officers of this Department for their valuable assistance in the accomplishment of the heavy task placed upon this branch of the public service. To them were committed most important trusts. Many of these officers have had responsible stations, great business responsibilities, and the most exacting executive duties. They deserve the highest credit for service efficiently performed, because upon the faithful and capable performance of the duties of a quartermaster the success of an army largely depends. The services of the officers who are on duty at the great depot and other important points where supplies are purchased and distributed are no less essential to success and involve no less labor and responsibility than those of the officers who accompany troops to the field.

I also gladly bear testimony to the zeal, fidelity, and intelligence with which many of the volunteer officers of this Department performed the important duties committed to them.

It is not only a matter of duty on my part, but also one of great pleasure, to here record my sincere appreciation of the able and efficient service of the officers associated with me in this office. They justly deserve the highest possible commendation for their intelligent and loyal discharge of the responsible and laborious duties imposed upon them. Day and night have they been at their posts of duty, rendering invaluable assistance, and only with their constant and untiring helpfulness has this office been able to promptly dispose of the immense volume of work coming daily to this office for consideration and action.

EMPLOYEES.

I do not forget the clerks and other employees serving in this office and throughout the Department at large. Without their assistance the work of this Department could not have been accomplished during the war emergency. Many of the permanent and experienced employees rendered most valuable and efficient service, some often working from twelve to fifteen hours a day, including Sundays and holidays. In a number of cases, by reason of their efficiency and experience, employees at Department headquarters were required to leave their homes and families to go to the field, and thereby were put to considerable expense without receiving additional compensation. These employees devoted all their energies to the interest of the public service. I strongly recommend that some action be taken by Congress to recompense all regular employees of this Department who performed this extraordinary service at a time when such service was of the greatest importance to the Government. A 20 per cent increase of their pay for one year would not be more than they justly deserve.

MEMORIAL BRIDGE.

I renew the recommendations of my predecessors that an appropriation be made by Congress for the construction of a bridge over the Potomac River between the Naval Observatory grounds and the Arlington Reservation, which will furnish a short and direct route to the cemetery and park and afford rapid communication between the capital and the large military post at Fort Myer, Va. This is an important matter, and it is hoped it may receive the consideration of Congress at its coming session.

Respectfully,

M. I. LUDINGTON,
Quartermaster-General, United States Army.

Hon. R. A. ALGER,
Secretary of War.

APPENDIX.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., September 28, 1898.

GENERAL: I have the honor to submit herewith the following report of the operations of the transportation division of this office during the fiscal year ended June 30, 1898.

Up to June last this division had charge of the supply of all means of transportation for the Army, together with cavalry and artillery horses, wagons, ambulances and vehicles, draft and pack animals, and all the articles necessary to the proper equipment of the same. Owing to the emergency of the war with Spain greatly increasing the demand for all these articles, the duties of this branch were divided by the Quartermaster-General in June, and the supply of means of transportation put under the supervision of Col. C. P. Miller, whose report will cover the operations for the entire fiscal year.

The present report of the transportation division will, therefore, be confined to rail and water transportation and telegraph and telephone matters, which also pertain to the duties of the officer in charge of this division.

The following statement shows that during the fiscal year ended June 30, 1898, transportation was furnished for 709,617 persons, 60,632 animals, and 1,529,585 tons of material:

	Railroad.	Water.	Wagon.	Stage.	Government vessels.	Total.
Passengers:						
Officers	15,691	701	32	116	34,124	50,664
Men	244,675	7,612	4	1,064	405,598	658,953
Total	260,366	8,313	36	1,180	439,722	709,617
Animals:						
Horses	30,135	1,040			1,708	32,883
Mules	26,520	236			1,993	27,749
Total	56,655	1,276			3,701	60,632
Stores, tons:						
Subsistence	136,491	6,379	3,286		5,351	151,507
Quartermaster	66,994	2,008	19,795		3,519	92,316
Ordinance	444,066	684,332	1,326		2,504	1,132,228
Medical	798	314	326		112	1,548
Signal service	2,479	607	19		42	3,147
Miscellaneous	141,392	1,841	4,919		687	148,839
Total	792,218	695,481	29,671		12,215	1,529,585

SUMMER ENCAMPMENT AND RIFLE COMPETITION.

From reports received it is shown that there was expended during the fiscal year 1898, in the transportation of troops in connection with summer encampments, practice marches, field maneuvers, and instructions, the sum of \$26,399.54; also for the transportation of enlisted men, to engage in rifle competition and target practice, the sum of \$10,526.80.

Where expended.	Summer camps.	Rifle competition.
Department of California.....	\$8,563.02	\$71.24
Department of the Colorado.....	2,072.35	2,581.30
Department of the Columbia.....	97.85	
Department of Dakota.....	4,313.29	1,205.14
Department of the East.....	3,488.84	1,599.24
Department of the Gulf.....	333.30	
Department of the Lakes.....	2,568.86	2,305.01
Department of the Missouri.....	3,966.93	2,763.87
Total.....	26,399.54	10,526.80

ACCOUNTS AND CLAIMS FOR TRANSPORTATION.

The records show that 4,729 accounts and claims for transportation, amounting to \$227,765.87, have been received, examined, and transmitted for settlement during the fiscal year ended June 30, 1898, exclusive of the extraordinary movement of troops incidental to the war with Spain.

Of these, 633 accounts, amounting to \$55,242.37, were chargeable to appropriations of the War Department for the several fiscal years in which the service was rendered; 2,403 accounts of other Departments, amounting to \$38,128.33, exclusive of bond-aided service and telegraph accounts.

Bond-aided Pacific railroad companies.

Railroad companies.	Passengers.	Animals.	Freight.
Union Pacific Ewy. Co.'s system.....	1,232	354	Pounds. 6,175,902
Southern Pacific Company, Central Pacific R. R. Co.....	19,576	1,043	25,750,061
Sioux City and Pacific R. R. Co.....	1,200	728	4,870,098
Missouri Pacific R. R. Co. (Central Branch Union Pacific).....			2,610
Total.....	22,008	2,125	36,798,671

There were 1,693 accounts for bond-aided service received at this office, amounting to \$134,395.17. Of these, 766 accounts were chargeable to appropriations of the War Department, amounting to \$103,154.67, and 927 accounts for other Departments, amounting to \$31,240.50, as shown by the following table:

Railroad companies.	Number of accounts.	Amount.	Subsidized.	Unsubsidized.	Remarks.
Union Pacific Rwy. Co.	171	\$35,375.90	\$31,924.65	\$3,451.25	War Department.
Do	375	12,541.46	8,412.09	9,129.37	Other Departmenta.
Southern Pacific Co.	535	67,230.61	22,596.44	44,634.17	War Department.
Do	540	16,388.00	12,307.84	4,080.16	Other Departmenta.
Sioux City and Pacific	60	548.16	513.57	34.59	War Department.
Do	12	2,311.04	2,310.83	.21	Other Departmenta.
Grand total	1,693	134,395.17	73,065.42	61,329.75	

SALE OF THE UNION AND KANSAS PACIFIC RAILROAD.

The main line of the Union Pacific Railroad Company ceased to be a bond-aided road November 1, 1897, under following Treasury Circular, No. 187 of 1897, and the Kansas Division ceased to be bond-aided March 31, 1898, under following Treasury Circular, No. 83 of 1898:

[Treasury Circular No. 187.]

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, November 11, 1897.

By the terms of an agreement recently entered into between the Secretary of the Treasury and the Union Pacific organization committee for the settlement and payment in full to November 1, 1897, of the indebtedness of the Union Pacific Railway Company to the United States, all claims for services rendered by said company to the United States remaining unsettled or unpaid on November 1, 1897, and all claims for like services thereafter rendered, are required to be paid to the company in cash.

In order, therefore, to facilitate the adjustment of matters involved in such settlement and to carry into full effect the terms of said agreement, it is hereby ordered that all pending claims for transportation services heretofore rendered by said company to the United States, and all claims for like services hereafter rendered, shall be settled by the accounting officers in favor of said company without reference to bond and interest account or to the requirements of the sinking fund created by the act of May 7, 1878.

The provisions of Department Circular No. 45, of March 9, 1895, are hereby modified accordingly.

L. J. GAGE, *Secretary*.

[Treasury Circular No. 83.]

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, May 17, 1898.

Department Circular No. 67 of 1898 is hereby amended to read as follows:

"The Kansas Pacific Railroad having been sold under a recent decree of the United States circuit court for the district of Nebraska, and the principal of its bonded indebtedness to the United States, amounting to \$6,303,000, having been paid into the Treasury under the terms of the sale, it is hereby ordered that one-half of the amount of compensation for services rendered to the United States by the Kansas Pacific Railroad Company over the bond-aided portion of its line prior to and including March 31, 1898, the date of the delivery of the road to its present owners, shall be withheld and covered into the Treasury as a reimbursement to the United States for interest paid on the bonded indebtedness of the company. Compensation for like services rendered after the date referred to shall be paid to the company in cash, without reference to its interest account with the United States."

The provisions of Department Circular No. 45, of March 9, 1895, are hereby modified accordingly.

L. J. GAGE, *Secretary*.

TELEGRAPH ACCOUNTS.

The accounts for telegraphic service examined by this office and transmitted for settlement were 291, amounting to \$4,889.99.

VESSELS OWNED BY QUARTERMASTER'S DEPARTMENT.

This Department has kept in service, at points named, where constant use is required, 11 steamboats, which it owns. The cost of maintaining these, including repairs, during the fiscal year 1898, was \$90,757.34. This statement is exclusive of transports purchased for prosecution of the war with Spain.

Name.	Class.	Tonnage.	When purchased or built.	Cost or estimated value.
General Meigs	Propeller	175	May 11, 1892	\$64,436.43
Ordnance	do	97	Sept. 1, 1883	27,870.80
Atlantic	Steam tug	60.31	Oct. 15, 1878	13,965.56
Resolute	do	70.50	Nov. 14, 1879	17,947.46
Monroe	Steam launch	62.56	Nov. 30, 1896	15,200.00
Thayer	do	32.86	Oct. 8, 1874	7,200.00
General Hancock	Ferryboat	171.06	Apr. 1, 1898	31,165.00
General Rufus Ingalls	Alco-vapor launch .....	.....	July 29, 1896	4,960.00
General D. H. Rucker	do .....	.....	.....	4,960.00
Hamilton	Steam launch	37.68	Feb. 1, 1875	7,900.00
General McDowell	Propeller	160	Nov. 17, 1886	56,150.00

Name.	By whom employed.	Where employed.	Paid for repairs.	Paid for running expenses.	Total expenses.
General Meigs ..	Depot quartermaster ..	New York Harbor	\$2,155.67	\$13,701.08	\$15,856.75
Ordnance	do	do	454.47	8,168.62	8,623.09
Atlantic	Quartermaster	Governors Island	366.00	9,217.92	9,583.92
Resolute	do	Boston, Mass	10,296.33	8,079.16	18,375.49
Monroe	do	Fort Adams, Mass	1,464.45	4,130.96	5,595.41
Thayer	do	Fort Slocum, Hamilton, Wadsworth, and Schuyler ..	127.00	1,012.88	1,139.88
General Hancock	do	Governors Island	153.56	3,211.72	3,365.28
General Rufus Ingalls	do	do .....	.....	.....	.....
General D. H. Rucker	do	Fort Monroe, Va .....	.....	.....	82.20
Hamilton	do	Fort Slocum, N. Y	663.37	4,053.95	4,717.32
General McDowell ..	Depot quartermaster ..	San Francisco, Cal	2,471.75	20,996.25	23,468.00
Total .....	.....	.....	18,152.60	72,572.54	90,725.14

The *General Rufus Ingalls* was transferred to Corps of Engineers, July 29, 1897. (88255 Q. M. G. O.)
The *General D. H. Rucker* transferred to Board on Regulating Seacoast-Artillery Fire, New York, Oct. 1, 1897.

\$2,300 was paid for a substitute boat while *Resolute* was under repairs, in addition to above cost.

\$294 was paid for a substitute boat while the *Monroe* was under repairs, in addition to above cost.

\$910 was paid for temporary hire of substitute for *General McDowell*, not included in the foregoing.

WATER TRANSPORTATION.

In anticipation of the possible needs of the Quartermaster's Department for ocean transportation for the movement of troops and supplies to Cuba, action was early taken by this office to be prepared for such an emergency, and correspondence was entered into with the various American steamship companies conducting the ocean traffic on the Atlantic and Gulf coasts to ascertain what vessels were available for charter for that purpose.

The responses received from the steamship companies were prompt, and indicated a desire upon their part to afford every means at their

command to aid the Government to provide suitable transportation of the Army and its supplies by sea.

An experienced officer of the Department was sent to New York to consult with the companies whose headquarters were in that city and to inspect and report upon the suitability of the vessels offered for charter. Similar measures were taken at all other points on the Atlantic and Gulf coasts where vessels were offered for charter, and in many instances, where practicable, the inspection was aided by an officer of the Navy detailed by the Navy Department for the purpose.

These reports enabled this office to select those vessels most desirable and best adapted for the transport service of the Army.

The following is a list of the companies with whom charters were entered into prior to July 1, 1898, for services of vessels, showing names of vessels, their tonnage, rate of charter per day, and their carrying capacity:

Owner.	Name of vessels.	Tonnage.	Rate of charter per day.	Carrying capacity.			Remarks.
				Of floors.	Men.	Animals.	
New York and Texas S.S. Co.	Comal	2,934	\$325.00	40	400	400	\$575 after thirty days.
Do	Alamo	2,943	625.00	35	700	10	Do.
Do	Rio Grande	2,566	500.00	50	500	10	
Do	Leona	3,329	500.00	45	700	10	
Do	San Marcos	2,837	500.00	45	800	350	
Do	Concho	3,704	580.00	35	700	10	
Do	Lampasas	2,237	650.00	35	200	400	
Do	Nueces	3,367	450.00	25	800	300	
New York and Cuba Mail S.S. Co.	Vigilancia	4,115	600.00	45	800	.....	
Do	Segurancia	4,115	600.00	35	600	500	
Do	Orisaba	3,497	500.00	30	640	125	
Do	Yucatan	3,525	500.00	45	1,000	250	
Do	Seneca	2,729	450.00	27	600	250	
Do	Saratoga	2,820	450.00	40	800	250	
Do	Santiago	2,359	450.00	40	600	250	
Do	City of Washington.	2,648	450.00	30	740	250	
Do	Manteo	583	300.00	10	250	100	
Southern Pacific Company	Gussie	998	350.00	20	100	300	
Do	Whitney	1,337	350.00	20	250	250	
Do	Morgan	994	400.00	20	250	230	
Do	Aransas	1,156	400.00	10	200	200	
Do	Clinton	1,187	400.00	20	200	200	
Merchants and Miners' Transportation Co.	Allegheny	2,014	600.00	25	300	200	\$550 after thirty days.
Do	Berkshire	2,014	600.00	25	250	200	Do.
Do	D. H. Miller	2,296	600.00	25	450	300	Do.
Plant Investment Co.	Florida	1,786	600.00	25	500	175	
Do	Olivette	1,611	500.00	25	600	40	\$450 after thirty days.
Tweedie Trading Co.	Catania	3,700	600.00	40	800	.....	
Wm. P. Clyde & Co.	Cherokee	2,557	500.00	40	950	.....	
Do	Iroquois	2,944	600.00	40	700	.....	
Do	Comanche	3,202	640.00	50	500	50	
Miami Steamship Co.	Matteawan	3,300	600.00	35	720	368	
Do	Miami	3,050	550.00	27	900	.....	
Cromwell Steamship Co.	Knickerbocker	1,642	400.00	45	900	.....	
Do	Louisiana	2,849	500.00	20	325	300	
Do	Hudson	1,800	400.00	35	600	.....	
New Orleans Belize Royal Mail Steamship Co.	Breakwater	1,065	340.00	25	500	.....	
Do	Stillwater	1,019	325.00	8	80	168	
Hanaw, Henry (Angier Line)	Unionist	2,156	375.00	10	.....	.....	\$325 after thirty days.
Do	Specialist	2,802	425.00	10	.....	.....	\$375 after thirty days.
Ocean Steamship Co.	Gate City	1,997	500.00	25	600	.....	
Do	City of Macon	2,098	500.00	25	600	.....	
New York and Porto Rico Steamship Co.	Arkadia	2,317	250.00	15	250	300	
Total .....	.....	104,201	.....	1,287	22,835	6,746	

Water boats, lighters, tugs, and barges.

Owner.	Name of vessel.	Tonnage.	Rate of charter per day.	Water.	Remarks.
				<i>Gallons.</i>	
John A. Donald	Steamer Kanawha	Water boat.	\$175. 00	180, 000	
Standard Oil Co.	Steamer Maverick	do	500. 00	440, 000	
Do	Barge S. O. N. Y. No. 77	do	100. 00	100, 000	
W. S. Vanaman	Schooner Anne E. Stevens.	do	50. 00	100, 000	
Galveston Steamship Co.	Steamer Bessie	Lighter.	50. 00		
Do	Steamer Laura	do	50. 00		
Cumberland Steamship Co.	Steamer Cumberland	do	50. 00		
W. C. Spotswood	Tug Capt. Sam		75. 00		
H. T. Hartwell	Tug Nimrod		80. 00		
W. C. Taylor	Barge Ora		10. 00		
	Barge Ben				
	Barge Tonart				Purchased by Government Do.
Total				\$20, 000	

In addition to the above-mentioned vessels, there were chartered from the Western Union Telegraph Company, for the Signal Service of the Army, the steamship *Adria*, at \$200 per day, used as a cable boat; from Capt. James McKay the steamship *Fanita*, at \$150 per day, for the secret service of the Army, and from John E. Reyburn the steamer *Gretchen*, at \$200 per month, for inspection purposes.

The operations in the harbor of Manila by the Navy rendered it necessary that provision be made for the transportation of troops and supplies to the Philippine Islands.

Some difficulty was met with in securing available transport ships on the Pacific coast, not because of the unwillingness of the steamship companies to charter their vessels, but from the fact that, their ships being engaged in traffic across the Pacific Ocean and as far south as Panama and the transaction of their business being undisturbed by the war, their vessels were not idle and could be secured only upon their arrival at their home ports on the Pacific coast.

In order to secure sufficient means of transportation, it became necessary to ask Congress to grant American registry to some of the ships available for charter, but were under foreign registry.

The following is a statement of the steamship companies from whom vessels were chartered on the Pacific coast, names of the vessels, their tonnage, rate of charter, and carrying capacity:

Owner.	Name of vessels.	Tonnage.	Rate of charter.	Carrying capacity.	
				Officers.	Men.
Pacific Mail Steamship Co	City of Sydney	3, 000	p. d. \$1, 000	50	1, 000
Do	China	5, 000	p. d. 1, 500	75	1, 500
Do	Colon	2, 700	p. d. 750	58	959
Do	City of Para.	3, 532	p. d. 1, 000	50	1, 000
Do	Newport	3, 000	p. d. 1, 000	30	800
Do	Peru	3, 500	p. d. 1, 000	50	1, 000
Oceanic Steamship Co.	Australia	2, 755	p. m. 20, 000	50	1, 000
Do	Zealandia	2, 489	p. m. 20, 000	20	750
Empire Transportation Co.	Ohio	3, 488	p. m. 25, 000	26	916
Do	Indiana	3, 158	p. m. 25, 000	58	950
Johnson Locke Mercantile Co.	Morgan City	2, 300	p. d. 600	32	700
Pacific Coast Steamship Co.	Senator	2, 409	p. d. 1, 000	43	967
Do	City of Puebla.	2, 623	p. d. 900	58	930
Pacific Steam Whaling Co.	Valencia	1, 198	p. d. 650	29	606
Total		41, 152		629	13, 059

This statement shows the employment on the Atlantic and Gulf waters at the close of the fiscal year of 43 transport vessels, having an aggregate tonnage of 104,201 tons, with a carrying capacity of 23,622 men, with their arms, ammunition, equipments, subsistence, and medical supplies, and 6,746 animals; 4 water boats, with a carrying capacity of 820,000 gallons, 3 steam lighters, 2 ocean tugs, and 3 deck barges.

On the Pacific coast, 14 transport ships, having an aggregate tonnage of 41,152 tons, with a carrying capacity of 13,688 men, with their complete outfit of camp and garrison equipage, arms, ammunition, medical supplies, and subsistence for a voyage of over 7,000 miles.

The combined fleets consisted of 69 vessels of all classes, with a total tonnage of 145,353 tons, and affording the means for movement of an army of over 37,000 men by sea.

To convert the vessels composing these fleets from their ordinary uses as freight vessels into safe and commodious transport ships extensive alterations were necessary. There had to be constructed sleeping accommodations for the men, stalls for the animals, a largely increased water capacity by construction of extra tanks and the supply of a large number of barrels and casks, and provisions made for pure-air ventilation. For this last-mentioned purpose many of the vessels were supplied with electric plants for running fans and for lighting the ship.

Much care and attention were given to the fitting out of the transports on the Pacific coast, to provide the troops with comfort, cleanliness, protection to health, and the proper means for cooking during the long voyage to Manila. For these purposes increased galley facilities, lavatories, and water-closets were constructed in all these vessels.

The reports received in this office from officers under whose supervision the ships have been fitted up show the following amounts expended for this purpose to the close of the fiscal year, viz:

For fitting up ships of the Atlantic and Gulf fleets	\$98, 364. 67
For the Pacific fleet (which includes the sum of \$7,694.30 for fitting up of the steamship <i>City of Peking</i> , which was chartered by the Navy Department and turned over to this department for transportation of the Army)	88, 268. 01
Total	186, 632. 68

Under the terms of the charter parties for services of transport vessels the Government has furnished all coal for running the vessels and the water required for boilers and drinking purpose.

The supply of coal for this purpose has been purchased, so far as possible, by contract at the lowest obtainable rates for delivery to the various ports where needed to supply the ships, and full report of the contract prices and quantities purchased will be found in the report of the branch of the office which is charged with the contract and purchase of coal.

The total cost for the supply of water is about \$21,000.

The payments for services of the vessels under charter to the close of the fiscal year have been as follows:

On the Atlantic and Gulf waters	\$1, 007. 952. 50
On the Pacific coast	319, 764. 17
Total	1, 327, 716. 67

HOSPITAL SHIPS.

To provide for the care and transportation of sick and wounded, the Quartermaster's Department purchased from the Maine Steamship Company, of Portland, Me., the steamship *John Englis*, for the sum of \$450,000. This ship has been fitted up as a hospital ship, with every appliance for the care, comfort, and treatment of sick and wounded.

For this purpose the interior of the ship was remodeled, and provided with electric plant for lighting and purifying, sterilizing and laundry plants, and also two steam launches. The expenditures for refitting of the ship, as shown by the accounts received in this office, amount to \$136,851.11.

The ship was renamed *Relief*, and is under the control of the medical department of the Army, an officer of that department being detailed to command the vessel.

Since the close of the fiscal year the steamship *Missouri*, used by the medical department of the Army as a hospital transport, has been fitted up for that purpose by the Quartermaster's department at an expenditure of \$85,854.

CHAS. BIRD,
Colonel and Quartermaster, United States Volunteers.

OPERATIONS SINCE THE CLOSE OF THE FISCAL YEAR 1897-98.

ORGANIZATION OF THE DIVISION OF TRANSPORTATION.

General Orders, No. 122, dated Adjutant-General's Office, August 18, 1898, publishes the following orders of the Secretary of War:

WAR DEPARTMENT, *Washington, July 18, 1898.*

A division of transportation is hereby created in the Quartermaster's Department, which shall be charged with the supervision and control of all rail and water transportation.

Col. Frank F. Hecker, U. S. Volunteers, is hereby detailed as chief of this division, and Col. Charles Bird, U. S. Volunteers, as deputy chief.

Their report upon the work of this division will be made direct to the Quartermaster-General.

R. A. ALGER, *Secretary of War.*

Owing to the increased volume of business due to active operations of the Army, it was found necessary to divide the work of the division of transportation into two branches, one to conduct the business pertaining to railroad transportation, and the other to have exclusive charge of the ocean transport service.

Since the beginning of the present fiscal year there have been chartered on the Atlantic coast the following-named vessels, viz: From the New Orleans, Belize Royal Mail Steamship Company, the S. S. *Wanderer*, of 531 tons burden, at \$220 per day; from the Plant Investment Company, the S. S. *La Grande Duchesse*, of 5,018 tons burden, at \$1,200 per day, and S. S. *Tarpon*, of 450 tons burden, at \$250 per day; and from H. P. Kirkham, the steamer *Uto*, of 899 tons burden, at \$165 per day.

These vessels were made auxiliary to the fleet of transports for transportation of troops and supplies to Cuba and Porto Rico, and increased the total tonnage of the troopships of the Atlantic fleet to 111,099 tons, and increasing the carrying capacity to over 25,000 men.

To meet the need for light-draft vessels for towing and lighterage at Santiago, Cuba, two fine ocean tugs were chartered early in July, the *Underwriter*, at \$160 per day, and the *Gladisfen*, at \$90 per day, and sent to that place.

There have also been chartered, for service in the movement of troops and supplies at Moutauk Point since the return of General Shafter's army from Cuba, one large steamship, at \$1,000 per day, for the transportation of sick and wounded, and five small steamers, three barges, and two flatboats, at a total cost of \$510 per day. As that place is abandoned as a camp, the services of these vessels are being dispensed with as rapidly as possible.

On the Pacific coast four additional vessels were chartered for the transportation of troops and supplies to Manila, viz: From the Pacific Mail Steamship Company, *City of Rio de Janeiro*, of 3,518 tons burden, at \$1,000 per day; from the Empire Transportation Company, steamship *Pennsylvania*, 3,166 tons burden, at \$25,000 per month; from the Alaska Commercial Company, steamship *St. Paul*, 2,440 tons burden, at \$1,000 per day, and from the Alaska Packers' Association, the sailing ship *Tacoma*, of 1,738 tons burden, at \$200 per day.

There were also purchased, for the service of the Army on the Pacific Ocean, two large and commodious steamships, the *Scandia* and the *Arizona*, which have been fitted up, the former as a hospital ship and the latter for the transportation of troops and supplies to the newly acquired islands of the Pacific Ocean. The prices paid for these vessels were, for the *Scandia* \$200,000 and for the *Arizona* \$600,000. These vessels have a tonnage, the former of 4,243 tons, the latter of 5,000 tons, and, with the four vessels chartered after the close of the fiscal year, increase the total tonnage of the fleet operating on the Pacific Ocean to 61,287, and the carrying capacity to over 20,000 men.

Three of the transport ships which formed the first expedition of the army to Manila have returned to San Francisco, and their charters have been canceled, viz: The steamship *Australia*, on August 29, 1898; the steamship *City of Sidney*, on August 30, 1898, and the steamship *Colon*, on September 7, 1898.

The charter of the steamship *City of Peking* has also been canceled by the Navy Department.

PURCHASE OF SHIPS ON THE ATLANTIC.

Upon loading the vessels at Port Tampa with General Shafter's army for the invasion of Cuba, it was found that the fleet which had been fitted up for the transportation of an army of 25,000 men or more, with their animals, equipment, and supplies, would not with safety carry more than about 16,000 men, and it therefore became necessary to increase the number of transport vessels, with larger carrying capacity for men and animals, and with bilge keels to prevent rolling, to make the ships more comfortable for stock.

Congress being averse to admitting foreign ships to American registry, the Secretary of War decided to authorize the purchase of vessels and have them fitted up to meet the needs of the Army for the safe and comfortable transportation of men and animals and the transportation of army supplies.

Fourteen large steamships have been purchased and fitted up into three classes, viz: First, freighters, for carrying coal, freight, etc.; second, combination ships, for carrying men and animals, with artillery,

wagons, stores, forage, harness, etc., and third, troopships, for carrying troops with regimental horses and their equipment and subsistence.

The following is a list of the vessels purchased, showing their tonnage, cost, class, and carrying capacity:

Name of vessel.	Tonnage.	Cost.	Class.	Carrying capacity.		
				Officers.	Men.	Animals.
Panama, No. 1	2,085	\$41,000	Freighter	10	400	.....
Port Victor, No. 2	2,792	175,000	do	25	400	.....
Rita, No. 3	2,194	125,000	do	15	700	.....
Mohawk, No. 20	5,658	600,000	Combination	80	1,000	1,000
Mobile, No. 21	5,780	600,000	do	80	1,000	1,000
Massachusetts, No. 22	5,673	600,000	do	80	1,000	1,000
Manitoba, No. 23	5,673	600,000	do	80	1,000	1,000
Minnewaska, No. 24	5,796	600,000	do	100	1,200	1,000
Mississippi, No. 25	3,732	350,000	do	40	800	800
Michigan, No. 26	3,722	350,000	do	40	800	800
Romanian, No. 27	4,126	240,000	do	45	1,100	50
Obdam, No. 30	3,656	250,000	Troopship	50	1,300	100
Berlin, No. 31	5,641	400,000	do	75	2,000	.....
Chester, No. 32	4,770	200,000	do .....	.....	.....	.....
Total	61,298	5,431,000	.....	720	12,700	6,750

Eight of these vessels are provided with refrigerators for the transportation of fresh meat, seven of them having a capacity of 1,000 tons each.

Two of them, the *Panama* and the *Rita*, were captured by the Navy and were purchased by the Quartermaster's Department after having been condemned as prizes by the proper courts and offered for sale.

All of these were merchant vessels and were temporarily fitted up by this Department as army transports to meet the urgent demands of the service for additional transports, for which purpose an expenditure was made of \$178,018.37.

All of these vessels are to be thoroughly overhauled and refitted for the army transport service, and two of them, the steamships *Mobile* and *Mohawk*, are now in course of being thus refitted. Specifications for refitting the others are being prepared, and the work upon them will be commenced as soon as they can be spared from the service upon which they are now engaged.

When these vessels are fitted up in the manner designed, it is believed that the Department will possess a fleet of the finest transport vessels afloat, and be thoroughly equipped to meet every demand upon it for ocean transportation.

TRANSPORTATION OF ARMY TO CUBA.

The fleet of transport ships which was concentrated at Port Tampa, Fla., in June last, for the transportation of the army of General Shafter to Cuba, consisting of 38 vessels, including 2 water boats, 3 steam lighters, 1 collier, and 1 tug, had been fitted out for the transportation of 20,000 to 25,000 men for a voyage to the vicinity of Havana, also 2 decked barges provided by the Engineer Department.

Upon embarkation of the troops it was found that the vessels would not safely and comfortably carry more than about 16,000 men, with their animals, equipments, ammunition, and subsistence and medical supplies, on a voyage of 1,000 miles. For some reason one of the steam lighters, the tug, and a decked barge did not reach Cuba with the fleet.

The entire fleet arrived without serious mishap at Daiquiri. Upon disembarkation of the army, difficulty was encountered by reason of the lack of sufficient means for lightering the vessels, which could not enter the harbor of Daiquiri, and this office was advised of the needs of the command.

Active efforts were immediately made by this office to supply the needed lighterage. Two decked barges in tow of the U. S. S. *Fern* were dispatched at once from Key West, which arrived safely, but were wrecked the day after their arrival. A seagoing tug, the *Nimrod*, chartered in Mobile, with three barges in tow, the *Ora*, *Ben*, and *Touart*, the former chartered, the last two purchased by the Department, were dispatched with orders to proceed direct to Santiago; and the chartered seagoing tug *Underwriter*, with two decked barges belonging to the Engineer Department of the Army, were dispatched to Santiago from New Orleans. These tugs lost all their barges, and only one of the tugs succeeded in reaching Cuba. Under instructions from this office the steam lighter *Bessie* was dispatched from Tampa to Santiago, but, her boilers springing a leak, she returned to Tampa for repairs.

These unsuccessful efforts to relieve the situation of the army in Cuba led the Department to enter into contract with the firm of D. Van Aken & Co., of New York City, to fit out an expedition with a large force of mechanics of various trades, and laborers, with machinery such as pile drivers, implements for construction of docks and railways, with the necessary materials, iron, and lumber, for building docks, lighters, repairing railroads and engines.

The company were furnished the steamship *Panama* and two fine ocean tugs, the *Gladysfen*, chartered at \$90 per day, and the *Gypsum King*, which was purchased for the service. This outfit proceeded to Santiago, thence to Ponce, Porto Rico, where their services have been of great value in the operation of the Army in that harbor.

The following is a list of vessels purchased by this Department to provide lighterage for the transport ships, showing their class and cost, respectively:

Name.	Class.	Cost.
<i>Gypsum King</i>	Tug	\$150,000
<i>Britannia</i>	do	40,000
<i>Sarah</i>	do	6,300
<i>E. L. Bartley</i>	Barge	5,000
<i>Willie</i>	do	5,000
<i>Annie</i>	do	10,000
<i>Mocha</i>	do	10,000
<i>Helen</i>	do	10,000
<i>L. E. Rinehardt</i>	Lighter	5,500
Total cost		241,800

These vessels, with the exception of the tug *Britannia*, which has been in service in New York Harbor and at Montauk Point, have been sent to Ponce, Porto Rico, and are usefully employed.

The total expenditure for the purchase of vessels of all classes has been as follows:

For 14 vessels on the Atlantic coast	\$5,431,000
For 2 vessels on the Pacific coast	800,000
For tugs, lighters, and barges	245,300
Total expenditures	6,476,300

Upon the cessation of hostilities in Cuba it became necessary, on account of sickness prevailing among the troops, to return General Shafter's army and to replace them by the five immune regiments, the Fifth United States Infantry, and the Twenty-third Kansas Volunteers.

The sick and wounded who were able to make the voyage were first considered in the matter of return, and these were brought to this country and placed in hospitals in the various coast cities. Montauk Point, Long Island, 117 miles from New York, was selected as a reception camp for the returning army, and preparations were made for the safe and speedy landing of the troops as they arrived and for the supplies required for them. For this purpose there were employed under charter several small vessels, of which the following is a list, showing their tonnage and rate of charter per day:

Name of vessel.	Tonnage.	Rate per day.
Propeller Alfred W. Booth.....	118	\$75
Propeller James A. Lawrence.....	86	75
Propeller Lewis Pulver.....	71	50
Steamer Vigilant.....	150	100
Steam lighter Columbia.....	175	80
Barge Carey.....		40
Barge Vanderbilt.....		40
Barge Arthur.....		40
Two flatboats, each.....		15

The steamship *Shinnecock*, 1,205 tons burden, was also chartered at \$1,000 per day to afford easy and comfortable transportation for the sick troops to other points where they might be sent for treatment.

The camp at Montauk Point having been broken up, the services of these vessels have been ordered to be dispensed with.

INVASION OF PORTO RICO.

The reinforcements sent to General Shafter's army in Cuba, consisting of General Garretson's brigade, which sailed from Charleston, S. C., a force of artillery from Tampa, Fla., and one regiment—the Eighth Ohio Volunteers—from New York City, arrived at Santiago just previous to the surrender of the Spanish army in that province, and their services were not needed. The Eighth Ohio Volunteers, being on the U. S. S. *Yale*, were disembarked, and the remainder of the command sailed to Ponce, Porto Rico, where it was disembarked. Other troops were dispatched to Ponce, viz:

General Ernst's brigade from Charleston, General Haines's brigade, General Schwan's brigade, General Grant's command, and eight batteries of artillery from Newport News, and Colonel Griffin's engineer regiment from New York—a total movement of about 16,000 men and 3,367 animals, with their artillery, equipment, and supplies, and a large quantity of ammunition and many army wagons.

Of these troops there have been returned to New York 5,581 men and 256 convalescents to Fort Monroe.

CANCELLATION OF CHARTERS.

As the chartered transport ships have arrived from Cuba and Porto Rico with their loads of returning troops, orders have been given from this office that as soon as the troops were disembarked the vessels proceed to their home ports for discharge from the service, unless there

The entire fleet arrived without serious mishap at Daiquiri. Upon disembarkation of the army, difficulty was encountered by reason of the lack of sufficient means for lightering the vessels, which could not enter the harbor of Daiquiri, and this office was advised of the needs of the command.

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<i>Willie</i>	do	5,000
<i>Annie</i>	do	10,000
<i>Mocho</i>	do	10,000
<i>Helen</i>	do	10,000
<i>L. K. Rinehardt</i>	Lighter	5,500
Total cost		241,800

These vessels, with the exception of the tug *Britannia*, which has been in service in New York Harbor and at Montauk Point, have been sent to Ponce, Porto Rico, and are usefully employed.

The total expenditure for the purchase of vessels of all classes has been as follows:

For 14 vessels on the Atlantic coast	\$5,431,000
For 2 vessels on the Pacific coast	800,000
For tugs, lighters, and barges	245,300
Total expenditures	6,476,300

Upon the cessation of hostilities in Cuba it became necessary, on account of sickness prevailing among the troops, to return General Shafter's army and to replace them by the five immune regiments, the Fifth United States Infantry, and the Twenty-third Kansas Volunteers.

The sick and wounded who were able to make the voyage were first considered in the matter of return, and these were brought to this country and placed in hospitals in the various coast cities. Montauk Point, Long Island, 117 miles from New York, was selected as a reception camp for the returning army, and preparations were made for the safe and speedy landing of the troops as they arrived and for the supplies required for them. For this purpose there were employed under charter several small vessels, of which the following is a list, showing their tonnage and rate of charter per day:

Name of vessel.	Tonnage.	Rate per day.
Propeller Alfred W. Booth.....	118	\$75
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Steamer Vigilant.....	150	100
Steam lighter Columbia.....	175	80
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Barge Vanderbilt.....		40
Barge Arthur.....		40
Two flatboats, each.....		15

The steamship *Shinnecock*, 1,205 tons burden, was also chartered at \$1,000 per day to afford easy and comfortable transportation for the sick troops to other points where they might be sent for treatment.

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General Ernst's brigade from Charleston, General Haines's brigade, General Schwan's brigade, General Grant's command, and eight batteries of artillery from Newport News, and Colonel Griffin's engineer regiment from New York—a total movement of about 16,000 men and 3,367 animals, with their artillery, equipment, and supplies, and a large quantity of ammunition and many army wagons.

Of these troops there have been returned to New York 5,581 men and 256 convalescents to Fort Monroe.

CANCELLATION OF CHARTERS.

As the chartered transport ships have arrived from Cuba and Porto Rico with their loads of returning troops, orders have been given from this office that as soon as the troops were disembarked the vessels proceed to their home ports for discharge from the service, unless there

has been necessity for their return for more troops or other urgent need existing for their further service. Under these orders there have been discharged and returned to their owners the following-named vessels, viz:

Name of vessel.	Date canceled.	Name of vessel.	Date canceled.
	1898.		1898.
S. S. Louisiana	Aug. 12	S. S. Florida	Sept. 9
S. S. Lampasa	Aug. 13	S. S. Breakwater	Sept. 10
S. S. Gate City	Aug. 13	S. S. Wanderer	Sept. 10
S. S. Iroquois	Aug. 13	S. S. Clinton	Sept. 11
S. S. Cherokee	Aug. 22	S. S. Gasie	Sept. 11
S. S. Matteawan	Aug. 24	S. S. Allegheny	Sept. 12
S. S. Miami	Aug. 24	S. S. Berkshire	Sept. 12
S. S. City of Macon	Aug. 26	S. S. Catania	Sept. 13
S. S. Rio Grande	Aug. 26	S. S. City of Washington	Sept. 15
S. S. Leona	Aug. 29	S. S. Nueces	Sept. 16
S. S. Morgan	Aug. 31	S. S. Alamo	Sept. 23
S. S. Arkadia	Sept. 2	S. S. Concho	Sept. 23
S. S. Comanche	Sept. 2	S. S. Specialist	Sept. 23
S. S. La Grande Duchesse	Sept. 2	S. S. Unionist	Sept. 23
S. S. Uto	Sept. 2	S. S. Tarpon	Oct. 2
S. S. Whitney	Sept. 2	S. S. Knickerbocker (not reported) .....	.....
S. S. Aransas	Sept. 3	S. S. Manteo (not reported) .....	.....
S. S. D. H. Miller	Sept. 3	S. S. Orizaba (not reported) .....	.....
S. S. Santiago	Sept. 3	S. S. Saratoga (not reported) .....	.....
S. S. Hudson	Sept. 6	S. S. Seneca (not reported) .....	.....
S. S. San Marcos	Sept. 8	S. S. Yucatan (not reported) .....	.....

The following-named vessels, whose services were no longer required, have also been discharged from the service of the Army and their charters canceled, viz:

Steamship Adria.
Steamship Fanita.
Steam lighter Laura.
Steam lighter Bessie.
Water boat Kanawha.

Water boat Maverick.
Water barge, S. O., of New York, No. 77.
Tug Captain Sam.
Tug Nimrod.
Tug Underwriter.

Other vessels are under orders for discharge, and the number employed is being reduced as rapidly as the needs of the service will permit.

EXPEDITIONS TO PHILIPPINE ISLANDS.

Seventeen of the large steamships on the Pacific and one large sailing vessel were chartered by the Department for the transportation of troops and supplies to the Philippine Islands, and two steamships have been purchased for this service.

The first expedition sailed from San Francisco on May 25, under command of General Anderson, with 2,491 officers and men, upon three steamships, *City of Sydney*, *Australia*, and *City of Peking*.

The second expedition, under command of General Greene, with 3,586 officers and men, sailed June 15 on the steamships *China*, *Colon*, and *Zealandia*.

The third expedition, under command of General Merritt, with the command of General MacArthur, consisting of 4,847 officers and men, sailed on June 25, 27, 28, and 29 on the steamships *Senator*, *Morgan City*, *City of Para*, *Indiana*, *Ohio*, *Valencia*, and *Newport*.

The fourth expedition, under command of General Otis, with 1,682 officers and men, sailed July 15 on the steamships *Peru* and *City of Puebla*, followed on July 19 by the steamship *Pennsylvania*, with 1,348 officers and men.

The last expeditions, under command of Gen. H. G. Otis, sailed on July 23 and 29 on the steamships *City of Rio de Janeiro* and *St. Paul*, with 1,735 officers and men.

These vessels have all arrived at Manila without mishap, and reports received show that the health and comfort of the men were maintained during the long voyage of over 7,000 miles.

The sailing ship *Tacoma*, with 30 enlisted men, 19 civilian teamsters, 210 horses and mules, 44 wagons and ambulances, and six months' supply of subsistence and forage, sailed from San Francisco on August 6. On August 21 the steamship *Arizona*, with 490 officers and men and 4 Red Cross nurses on board, sailed from San Francisco, and on August 27 the steamship *Scandia* sailed with troops for Honolulu and 173 officers and men for Manila.

The entire movements show that transportation was furnished from San Francisco to Manila for 16,405 persons, with their equipments and supplies.

TROOPS SENT TO HONOLULU.

Upon the acquisition of the Hawaiian Islands the First Regiment New York Volunteer Infantry was ordered to Honolulu for garrison duty. A contract was made for the transportation, at a per capita rate, of three companies of that regiment by a merchant vessel—11 officers and 313 men—who sailed from San Francisco on August 18. The remainder of the regiment, 10 officers and 293 men, sailed for Honolulu on August 27 on the steamship *Scandia*, a vessel owned by the Quartermaster's Department, showing a total of 629 persons transported to Honolulu.

MOVEMENTS BY WATER.

The total movements by transport ships have been as follows:

	Men.
To Cuba:	
From Tampa, Fla., General Shafter's army, about	18, 000
From Newport News, Va., General Duffield's command	3, 500
From Tampa, Fla., First District of Columbia Volunteers	850
From New York City, Eighth Ohio Volunteers	1, 200
From New Orleans, La., 2 regiments U. S. Volunteers (immunes)	2, 000
From Savannah, Ga., 2 regiments U. S. Volunteers (immunes)	2, 067
From New York City—	
Eighth Illinois Volunteers (colored)	1, 000
Twenty-third Kansas Volunteers (colored)	878
From Tampa, Fla., Fifth United States Infantry	700
Total	28, 195
To Porto Rico:	
From Charleston, S. C.—	
General Garretson's brigade, by way of Santiago, with General Miles	2, 400
General Ernst's command	3, 200
From Tampa, Fla.—	
General Schwan's brigade, with Lieutenant-Colonel Black's engineer companies	2, 500
Artillery and recruits	700
From Newport News, Va.—	
General Haines's brigade	4, 427
General Grant's command	1, 273
6 batteries artillery	1, 041
6 troops cavalry	719
From New York City, engineer regiment and civilian employees	1, 200
Total	17, 460
Returned from Cuba:	
Convalescents to various cities on the Atlantic coast	2, 258
Troops to Montauk Point, New York	19, 428
Total	21, 686

	Men.
Returned from Porto Rico to New York	5,541
Clerks, messengers, mechanics, teamsters, packers, and laborers transported to Cuba and Porto Rico, about	2,150
Returned from those islands	770
Total	2,920

RECAPITULATION.

Persons transported—	
To Cuba	28,195
To Porto Rico	17,460
To Manila	16,405
To Honolulu	629
From Cuba	21,686
From Porto Rico	5,541
Civilian employees transported	2,920
Total persons transported by sea	92,836

TRANSPORTATION OF SPANISH PRISONERS OF WAR TO SPAIN.

Under the terms of capitulation for the surrender of Santiago de Cuba to the American Army, it was agreed that transportation should be furnished by the United States Government for the Spanish prisoners of war to Spain, and to provide subsistence to them while en route.

The Quartermaster's Department was directed to provide for carrying out the terms of this agreement. In response to public advertisements, proposals for the transportation from Santiago de Cuba to Cadiz, or to such other port of Spain as might be designated, for 1,000 commissioned officers and 24,000 enlisted men, and for their subsistence en route, were received and opened on July 20, 1898. Ten proposals were received, which were carefully digested and considered, and the one submitted by an American citizen on behalf of the Spanish Trans-Atlantic Company was accepted and contract entered into with that company for the transportation of all the prisoners of war, the commissioned officers to be provided with first-class cabin accommodations on the ships, and the enlisted men with third-class or steerage passage, with suitable galley accommodations conforming to the United States requirements as to space and ventilation for enlisted men, and to provide subsistence while en route equal to the garrison ration of the United States Army. The rates paid under the terms of the contract are for each commissioned officer \$55 per capita, and for each enlisted man \$20 per capita, the men to be delivered on the ships by the United States.

The only other bid from responsible parties, and who represented steamship companies having sufficient facilities to carry out the contract, was the combined bid of the Anchor Line, Cunard Steamship Company, Limited, Hamburg American Packet Company, Robert M. Sloman & Co., Frederick Leyland & Co., Limited, North German Lloyd Steamship Company, Royal Mail Steam Packet Company, Thomas Wilson Sons & Co., Limited, and Wilson & Furness Leyland Line, Limited, which bid was for officers \$110 and enlisted men \$55 per capita, steamers to be dispatched from Santiago de Cuba within forty-eight hours of their reported arrival, or demurrage to be paid at rate of 60 cents per capita per day, passenger capacity. If passengers are on board during such delay, 40 cents additional per capita per day. Same demurrage rates to be paid if steamer be detained at place of debarkation by quarantine or other cause. Will endeavor to have vessels at Santiago de Cuba between July 30 and August 10, 1898, but

desire, if necessary, an extension of time to include the entire month of August.

As will be observed, this bid had demurrage conditions which would have amounted to a large sum in addition to the per capita, amounting for the actual number transported to \$1,312,915, whereas the contract entered into had no demurrage conditions and the actual sum paid was \$513,860.

Mr. Solon F. Massey, agent Quartermaster's Department, was designated to superintend the embarkation and to report the number of officers and men which were put on board the vessels. The Government decided to include in the transportation the wives and children of the officers, and the priests and sisters of charity who had been in service in the hospitals and with the Spanish army.

The report of Mr. Massey, which has just been received in this office, shows that the embarkation began on August 9, 1898, and was completed on September 17, 1898, and that 22,864 persons were embarked.

The following is a statement showing the dates of embarkation, names of vessels, and number of officers, enlisted men, and others who took passage:

Date of embarkation.	Name of vessel.	Officers.	Enlisted men.	Women and children over 5 years of age.	Priests and Sisters of Charity.	Total.
August 9	Alicante	38	1,069	6	11	1,124
August 14	Isla de Luzon	137	2,056	40	4	2,237
August 16	Covadonga	169	2,148	79		2,336
August 19	Villaverde	52	565	34		651
Do	Isla de Panay	99	1,599	26	5	1,729
August 22	P. de Satrustegui	128	2,359	68		2,555
August 25	Montevideo	136	2,108	122	2	2,368
August 27	Cheribon	18	905	37		960
August 28	Colon	100	1,316	59		1,475
August 30	do	23	728	5		754
September 1	Leon XIII.	113	2,209	108		2,430
September 3	San Ignacio	59	1,408	20	12	1,499
September 6	Leonora	15	1,118			1,133
September 12	Ciudad de Cadix	53		19	14	86
September 17	San Augustin	65	800	45		910
Do	San Francisco	18	588	11		617
Total		1,163	20,974	679	48	22,864

The report of Mr. Massey states that, with the exception of the delay of eleven days in getting the Spanish prisoners from Baracoa and Sagua de Tanamo to Guantanamo, where the transport ships awaited them, the embarkation was expeditiously and satisfactorily accomplished; that he inspected the ships and found all of them well arranged for the services they were engaged to perform, and well equipped for the comfort of the men and with ample quantities of food for the subsistence of the passengers for fifteen days, and varied in quality. That three of the vessels were fitted out as hospital ships, viz: *Alicante*, *Cheribon*, and *San Ignacio*, which were well equipped for that service, with surgeons and assistants, and modern appliances for the care and comfort of the sick.

The Department is assured from the report of Mr. Massey that the difficult problem of transportation of the Spanish prisoners of war has been economically and satisfactorily solved.

ESTABLISHMENT OF A LINE OF STEAMSHIPS TO CUBA AND PORTO RICO.

The permanent occupation of the islands of Cuba and Porto Rico by the army has rendered necessary the transportation of large quantities

of Army supplies to those islands, and also the mails for the troops. It was therefore determined to establish a regular weekly line of steamships to sail from New York to points in Porto Rico and Cuba and return to New York, for the transportation of supplies and mails for the Army, and also such officers, enlisted men, employees, and other persons who are entitled by competent orders to be furnished transportation by the Quartermaster's Department between those points. This line was opened Wednesday, August 31, 1898, on which date the steamship *Seneca* left New York with the Porto Rican Commission on board, sailing direct to San Juan, Porto Rico, where the commission disembarked and the vessel proceeded thence to Ponce, Porto Rico, and thence to Santiago de Cuba, at which places, after delivery of supplies and mails, she returned direct to New York with passengers and mails.

Since the sailing of the *Seneca* from New York a steamship has sailed from that port every Wednesday for Ponce, Santiago and return, and it is anticipated that the fine transport ships now owned by the Department will be found amply sufficient to maintain this regular service and perform such other ocean transport service as is required for the maintenance of the armies serving in Porto Rico and Cuba.

TRANSPORTATION OF RELIEF SUPPLIES.

Large quantities of supplies have been transported by the Quartermaster's Department to Cuba for the relief of the people on that island upon the request of the officers of the Red Cross Society, National Relief Association, and other kindred associations and individuals interested in the work of relief of the suffering Cubans.

Since the occupation of Santiago by the army, at the request of Miss Clara Barton, of the Red Cross Society, a large quantity of supplies belonging to that society and not needed in Santiago have been loaded on the chartered steamship *Olinton* and transported to Havana. The steamship *Comal* has been turned over to the Subsistence Department of the Army and is engaged in the transportation of relief supplies, one cargo having been delivered to Havana, and the vessel being now on her way to Matanzas with another load for that port.

In concluding this report it is proper that acknowledgment be made of the valuable assistance rendered to this division of your office by the officers of the Quartermaster's Department stationed in New York, Philadelphia, Tampa, Key West, New Orleans, Mobile, Charleston, Fort Monroe, and Newport News on the Atlantic and Gulf coasts, and at San Francisco and Seattle on the Pacific coast, at all of which places there has been great activity in the successful conduct of the ocean transport fleets, in fitting up the ships and providing the necessary supplies for running them. The acknowledgment and thanks of the Department are also due to the officers of the Navy who have rendered valuable counsel and assistance in the inspection and preparation of the ships for the service of the Army.

Respectfully submitted.

FRANK J. HECKER,
Colonel and Quartermaster, U. S. Volunteers,
Chief of Transportation Division.

CHAS. BIRD,
Colonel and Quartermaster, U. S. Volunteers,
Deputy Chief of Transportation Division.

The QUARTERMASTER-GENERAL OF THE ARMY.



The following special report on railroad transportation, covering movements of troops since the inauguration of the war with Spain to the transfer of troops from Camp Wikoff at Montauk Point in September and first week of October, is respectfully submitted:

MOVEMENT OF THE REGULAR ARMY.

The orders for the movement of the regular troops to Chickamanga, New Orleans, Mobile, and Tampa were sent out by the Adjutant-General of the Army about the middle of April, 1898, and were addressed to the several department commanders. They designated the point of destination and the time at which the movement was desired to take place.

The chief quartermasters of the respective departments were immediately charged by the Quartermaster-General with all the necessary transportation arrangements. The troops were put in motion as fast as arrangements with the railroad companies could be perfected, and were rapidly assembled at the points designated by the War Department. In no case was any delay ever reported to this office, nor is any known to have occurred. These troops were moved with the most satisfactory dispatch, and an entire absence of accident.

MOVEMENT OF THE VOLUNTEER FORCES.

Upon the receipt by the Quartermaster-General from the War Department of a list showing the assignment of the volunteer forces to the several national encampments of mobilization, the proper officers of the Quartermaster's Department throughout the country were disected, in anticipation of the required movement, to examine the list supplied by the War Department and familiarize themselves with every detail of the subject; to consult the proper railroad officials interested in the transportation of these troops, and determine in advance, as far as practicable, all preliminaries that could be settled before the actual movement of the troops occurred, such as determining routes of travel, rates, etc., for each movement, so that when the troops should actually move no possible delay should occur, and they might be moved with comfort and celerity.

The officers of the Department acted in all these matters with commendable zeal and energy, and in many cases agreed upon flat rates to govern all such shipments which were most advantageous to the Government as a matter of economy.

On May 13 the Adjutant-General sent to the Quartermaster-General his first orders for the movements of volunteers—a separate order for each organization—designating the point of destination. Instructions were immediately wired, in all cases of even date with the order of the Adjutant-General, to the quartermasters most convenient to move the troops. At the same time the commander of the organization was wired as to the officer charged with the movement, and the chief quartermaster at the national encampment was also informed by telegraph that the shipping officer would wire him the date of departure and probable time of arrival of each organization. Under these instructions the volunteer troops have gone to destination with promptness and remarkable freedom from accident or delay en route.

Statement has been prepared in this office showing, as far as possible, the shipments of the various volunteer organizations, with all detailed information as to number of officers and men, dates of movements, cost of the service, passenger and freight, with the rates at which each movement has been made. This report is voluminous, and

the conclusions or summary, from information obtained to date, only can be stated in the present report. Moreover, it must remain for some time yet incomplete, until the accounts for all these services are rendered by the many railroads of the country, critically examined, and paid. It will, when completed, present in tabular form a correct and detailed statement of all railroad transportation connected with the movements of troops of the Regular and Volunteer Army during the war with Spain.

From April 1, 1898, to the breaking up of Camp Wikoff, the aggregate movement of troops by rail amounted to 17,863 officers and 435,569 men.

The following movements have been made since April 1, 1898, and reported in full to this office:

Departments, depots, and camps.	Officers.	Men.	Total.
Chief quartermaster:			
Department of the Lakes.....	2,299	52,201	54,500
Department of the East.....	722	14,182	14,904
Department of the Columbia.....	294	6,289	6,583
Department of the Colorado.....	286	6,844	7,130
Department of the Gulf.....	602	13,615	14,217
Department of Dakota.....	487	10,374	10,861
Department of the Missouri.....	646	12,751	13,397
Department of California.....	348	1,624	1,972
Depot quartermaster:			
New York City.....	3,166	74,266	77,432
St. Louis, Mo.....	589	13,498	14,075
Washington, D. C.....	1,573	49,848	51,420
Philadelphia, Pa.....	124	3,603	3,727
Chief quartermaster:			
Anniston, Ala.....	50	1,279	1,329
Huntsville, Ala.....	242	5,888	6,130
Mobile, Ala.....	406	8,324	8,730
Jacksonville, Fla.....	428	11,095	11,523
Tampa, Fla.....	1,303	39,121	40,424
Miami, Fla.....	274	7,327	7,601
Chickamauga, Ga.....	2,785	68,095	70,880
Knoxville, Tenn.....	171	5,434	5,605
Lexington, Ky.....	266	7,307	7,573
San Antonio, Tex.....	46	1,255	1,301
New Orleans, La.....	352	10,281	10,633
Camp Meade, Pa.....	405	10,580	10,985
Total.....	17,863	435,569	453,432

Extremely low rates have been secured by the Quartermaster's Department in making these movements, generally not exceeding $1\frac{1}{2}$ cents per mile for passengers, and in many cases much less, and about one-half the prevailing tariff rates for freight in excess of 150 pounds per man carried free.

A special outfit has been provided under orders of the Secretary of War, to be used by the Surgeon-General as a hospital train. This train was made up of ten tourist sleepers, two kitchen and dining cars, and a combined passenger and baggage car. It was furnished by the Medical Department, placed in charge of its trained nurses, and kept exclusively for the purpose of carrying sick and wounded to points designated by the proper medical officers.

Respectfully submitted.

FRANK J. HECKER,
Colonel and Quartermaster, U. S. Volunteers,
Chief of Transportation Division.

CHAS. BIRD,
Colonel and Quartermaster, U. S. Volunteers,
Deputy Chief of Transportation Division.

QUARTERMASTER-GENERAL'S OFFICE, October 11, 1898.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., September 1, 1898.

GENERAL: I have the honor to submit the annual report of the clothing supply branch of this office for the fiscal year ending June 30, 1898.

The principal work of this branch, to which I was assigned for duty on the 15th of May last, consists of the purchase, manufacture, and issue of all the clothing and equipage supplies required by the Army.

MANUFACTURES AND PURCHASES.

The strength of the Army prior to the war with Spain consisted of about 25,500 men, and under the annual appropriations made by Congress it was only with the strictest economy that it was possible to procure the necessary clothing and equipage supplies to which the Army was entitled under existing orders and regulations.

The accompanying Statement A shows in detail the quantities of the principal articles of clothing and equipage and clothing materials on hand at the general depots of the Quartermaster's Department on the 30th of April last, consisting, among other articles, of the following:

Wool blankets	61,368	Trousers:	
Blouses	28,192	Foot	pairs.. 21,000
Forage caps	26,670	Mounted	do.. 18,074
Canvas fatigue coats	12,976	Cotton undershirts	122,965
Canvas fatigue trousers.. pairs..	11,866	Woolen undershirts	75,134
Canton flannel drawers.....do...	61,092	Common tents	1,503
Campaign hats	32,367	Conical wall tents	605
Leggings	51,354	Hospital tents	291
Overcoats	9,374	Shelter tent halves	12,692
Rubber ponchos	4,775	Wall tents	511
Dark-blue flannel shirts	30,764	Blouse flannel	yards.. 169,615
Barrack shoes	39,644	Canton flannel	do.. 103,669
Shoes	33,939	Cotton duck for tents	do.. 290,196
Cotton stockings	321,064	Sky-blue kersey, 22 ounces..do...	112,782
Woolen stockings	94,330	Shirting flannel	do.. 73,758

This was the condition of affairs on the 30th of April last.

On the 22d of April the Department found itself suddenly confronted with the problem of clothing and equipping an army of 125,000 volunteers, to which Congress, on the 26th of April, added an increase to the regular establishment aggregating 61,184 men, exclusive of about 1,500 men pertaining to miscellaneous detachments. On the 25th of May last 75,000 additional volunteers were called into service, making a grand total of 262,684, instead of 25,000 men, to which should be further added 10 regiments of immunes, 3 regiments of engineers, and 1 of the Signal Corps, and 3 regiments of volunteer cavalry.

Recourse was at once had to every known expedient to obtain supplies, but great difficulties had to be overcome. As an instance, in the matter of uniform trousers, the wool had to be dyed out of which to manufacture the cloth from which to make the garments. It was upon the recommendation of this office that the Secretary of War authorized the purchase of dark-blue trousers, which aided materially in equipping the men. The Department was subjected to criticism on this account, but the men were clothed; otherwise they would not have been.

Contracts had to be entered into for all the different articles of cloth-

ing and equipage, for which there would likely be an early demand, and the extent of the latter could not even be properly anticipated.

Great care and vigilance had to be exercised to prevent the supply of articles of inferior quality, and it is believed that the Department has been successful in preventing deliveries of goods that could reasonably be objected to. The aim has been to obtain articles conforming as nearly as practicable to existing standards and specifications.

One of the greatest difficulties encountered and successfully met was the extraordinarily large demands for tents. Besides providing for the regulation allowances to which the troops were entitled, and for ordinary hospital purposes, the sickness to which our Army in active campaign as well as in camp was subjected created demands beyond all expectation. It should be borne in mind that at the commencement of the war there was scarcely any cotton duck to be found in this country suitable for military purposes, the supply having become depleted by the large demand for tentage from persons leaving the States for the Klondike region and the unprecedented purchases by the Navy Department.

The manufacture of tents was prosecuted in every locality West and East, wherever it was found possible to obtain the materials and labor skilled to manufacture them. Even recourse was had to the assistance kindly tendered this Department by the Second Assistant Postmaster-General, who placed the force of the mail-bag repair shop at its disposal. By this timely aid alone 3,771 common tents were manufactured from the materials which were furnished by this Department for that purpose.

Notwithstanding all the difficulties, in the short period of about four months nearly 300,000 men have been fully equipped and the equipment maintained. A portion of the Army has been transported to and supplied in the Philippines; another portion in Porto Rico, and an army of 20,000 cared for in Cuba under the most difficult and trying conditions. The army in Cuba, leaving everything behind, arrived at Montauk Point and found a complete new outfit of tents and clothing ready there for them.

The accompanying Statement B shows in detail the quantities of the principal articles of clothing and equipage and materials purchased or contracted for during the last fiscal year, and the various places at which they were procured—this for the purpose of showing the endeavors of the Department to reach every locality that could contribute toward meeting the requirements of the service, taking into consideration the quality and kind of supplies needed. For a better understanding, this statement has been divided into two periods, viz, from July 1, 1897, to April 30, 1898, covering the period prior to the commencement of the war with Spain, and from May 1 to the close of the fiscal year; also from July 1 to August 15, 1898—this for the purpose of showing the purchases and manufactures of the principal articles on account of said war.

There were manufactured at the Philadelphia, Jeffersonville, St. Louis, and San Francisco depots, during the periods specified in this statement, the following principal articles, viz:

Articles.	Depot.									
	Philadelphia, Pa.			Jeffersonville, Ind.			San Francisco, Cal.			St. Louis.
	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.	May 1 to June 30, 1898.
Dress coats, all kinds	1,739	624					207			
Overcoats, kersey, made and unmade	6,372	18,243					369	450	1	
Blouses, made and unmade	7,319	40,419	2,466	8,680	49,074	15,703	1,256	5,474	3,407	
Coats, canvas fatigue	3,876	3,048	2,972	3,346	1,715	2,525	921	4,946	3,414	
Trousers:										
Kersey, foot, made and unmade	22,996	47,200	15,284				3,239	10,692	732	10,651
Kersey, mounted, made and unmade	7,637	2,232	7,720				266	437	226	7,273
Canvas fatigue	5,853	3,047	2,877	5,224	972	2,356	1,841	5,255	3,440	
Overalls	700	500	4,352				746	12	283	
Stable frocks	300		792				2,023			
Shirts, dark blue flannel	16,945	41,289	20,999	10,235	9,440		1,866	1,809	40	
Drawers, canton flannel	19,834	36,459	24,978	27,272	34,544	5,184	4,482	2,414	113	
Tents:										
Conical wall	328	9	15							
Hospital	207	131	295							
Wall	589	285	383							
Shelter	6,351	179,499	18,003							
Common	862	935	217							

Purchases and contracts for clothing and equipage were made at the following depots and points, viz: Philadelphia, Pa.; Jeffersonville, Ind.; St. Louis, Mo.; San Francisco, Cal.; New York; Chicago, Ill.; Boston, Mass.; Baltimore, Md.; New Orleans, La.; Cincinnati, Ohio; Detroit, Mich.; St. Paul, Minn.; and Washington, D. C., and the following are the principal articles that were purchased or contracted for. Except in instances where the necessities of the service required purchases in open market, competition was in all cases invited.

Articles.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.
Blankets, wool	22,000	299,187	247,151
Blouses .....	.....	105,224	160,008
Caps, forage	77,000	230,000	.....
Canvas fatigue coats .....	.....	24,022	7,579
Canvas fatigue trousers .....	.....	24,011	7,579
Drawers, canton flannel .....	.....	50,000	.....
Drawers, summer	43,340	648,438	408,554
Field and summer uniforms .....	.....	39,150	114,019
Hats, campaign	18,040	263,346	213,359
Leggings	11,000	207,300	381,500
Overcoats .....	.....	4,000	125,000
Ponchos, rubber	32,925	220,385	105,000
Shirts, dark-blue flannel .....	.....	239,784	308,850
Shoes:			
Barrack .....	.....	25,000	51,093
Calfskin	27,950	538,963	243,640
Stockings:			
Cotton .....	.....	726,199	1,270,500
Woolen	40,006	129,764	21,178
Trousers:			
Foot .....	.....	114,351	273,405
Mounted .....	.....	.....	33,000
Duck .....	.....	4,150	110,850
Undershirts:			
Cotton	40,000	766,545	546,111
Woolen .....	.....	31,477	12,879

Articles.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.
Tents:			
Common		18,887	24,190
Conical wall		451	285
Hospital		447	5,473
Shelter halves		135,773	39,104
Wall		5,270	2,712
Duck, tent, all kinds	382,354	1,072,828	422,000
Flannel:			
Blouse	40,000	330,479	3,200
Canton		449,062	550,429
Shirting	23,114	671,620	4,000
Kersey, sky-blue	68,754	561,068	16,110

Statement C, accompanying this report, shows in detail the issues of clothing and equipage made during the three periods from July 1, 1897, to April 30, 1898, from May 1 to June 30, and from July 1 to August 15 last. The following are the principal items, viz:

Articles.	July 1, 1897, to Apr. 30, 1898.	May 1 to June 30, 1898.	July 1 to Aug. 15, 1898.
CLOTHING.			
Blankets, wool	27,559	193,071	96,091
Blouses	35,624	179,908	122,218
Forage caps	81,784	4,140	13,164
Canvas fatigue coats	34,775	38,840	20,259
Canvas fatigue trousers	37,390	38,385	21,308
Campaign hats	39,265	189,519	306,677
Drawers:			
Canton flannel	66,804	74,470	30,128
Summer	10,502	236,491	372,856
Leggings	36,439	133,815	263,855
Overcoats	17,016	4,416	10,967
Rubber ponchos	6,822	197,139	102,358
Dark-blue flannel shirts	36,699	315,098	238,574
Shoes:			
Barrack	14,129	38,306	22,692
Calfskin	57,017	299,475	216,961
Stockings:			
Cotton	249,746	617,990	556,882
Wool	73,959	31,137	20,336
Trousers:			
Foot	59,466	175,630	145,889
Mounted	19,117	18,005	28,621
Undershirts:			
Cotton	56,152	185,115	390,557
Wool	29,327	34,404	23,487
EQUIPAGE.			
Tents:			
Common	1,971	19,115	25,561
Conical wall	486	1,128	84
Hospital	144	1,722	2,610
Shelter halves	8,824	247,087	85,512
Wall	923	5,256	2,480
MATERIALS.			
Flannel:			
Blouse	31,241	167,309	37,759
Canton	150,728	221,497	90,634
Shirting	63,556	102,332	42,008
Duck, cotton for tents, all kinds	170,568	932,797	173,401
Kersey, sky-blue, 22-ounce	104,244	159,045	35,936

The accompanying Statement D shows the articles of clothing and equipage that were sent just prior to, as well as during, the period of actual hostilities, and subsequent thereto, to the various distributing depots and camps, and a careful perusal will show the work that has been accomplished in so comparatively short a period. In this connection it is proper to state that many of the States which contributed toward filling the quota of volunteers of the first call held their men in camps before they were mustered into the United States service,

and when turned over to the General Government they were in many cases without proper clothing; especially was this the case in regard to underclothing and shoes.

It was from this source that the principal complaints regarding the insufficiency of the clothing supplies arose; nor is it strange that people unfamiliar with the state of affairs existing at the time of the outbreak of hostilities can not appreciate the difficulties that had to be overcome; and the above figures show conclusively what has been accomplished in the matter of supplying the Army with the clothing and equipage necessary for its efficiency and comfort. In 1861, after a much longer lapse of time, many regiments went to the front without uniforms. Even tentage had to be imported from Europe, and the records of the Department show that as late as December, 1861, nine months after the commencement of the war, men were insufficiently clad to perform their duties at the very capital of the nation.

No great difficulties were met in equipping the troops enlisted under the second call, as, by a better cooperation between State officers and the War Department, supplies were delivered at points of muster in advance.

RECEIPTS AND EXPENDITURES.

The annual appropriation for clothing and equipage for the fiscal year ending June 30, 1898	\$1,050,000.00
The appropriation to supply deficiencies for support of the Army, under act of Congress, approved May 4, 1898	10,000,000.00
To which were credited during the last fiscal year the following amounts:	
Reimbursements on account of issues to the militia of the States and Territories	189,248.37
Collections by Pay Department on account of clothing drawn by the enlisted men in excess of their allowance, from purchases of discharges by enlisted men under section 4, act of Congress of June 16, 1890; also from sales to officers, to the militia, and surveying expeditions authorized by law	95,125.61
Total	11,334,373.98
The remittances to officers of the Quartermaster's Department at the general depots and elsewhere for the purchase and manufacture of clothing and equipage and other expenditures chargeable to—	
Annual appropriation	\$1,321,435.91
Deficiency appropriation	4,208,513.87
Requisitions issued on settlements made at Treasury of accounts and claims	464.68
The amount refunded to the appropriation for arming and equipping the militia on account of clothing and equipage supplies returned to the Quartermaster's Department	197.60
5,530,612.06	
Leaving a balance of	5,803,761.92
available in the Treasury of the United States on the 30th of June, 1898.	
To this amount should be added the sum of	26,000,000.00
appropriated by Congress July 7, 1898, and not yet drawn upon, making the total amount available for the purchase of clothing and equipage	31,803,761.92

Of this amount, \$7,229,997.07 were required on the 15th of August last to pay for all expenditures on account of clothing and equipage incurred by this Department up to said date.

The regular appropriation by Congress for clothing and equipage for the fiscal year ending June 30, 1899, is \$975,000, which as yet has not been drawn upon.

REMITTANCES.

The following are the amounts that were remitted to officers during the last fiscal year from the annual and deficiency appropriations:

Depot at Philadelphia, Pa.....	\$2, 669, 383. 20
Depot at Jeffersonville, Ind.....	97, 703. 30
Depot at San Francisco, Cal.....	672, 294. 64
Depot at St. Louis, Mo.....	98, 323. 44
Depot at Washington, D. C.....	2, 658. 75
Depot at New York.....	1, 209, 923. 55
Depot at Baltimore, Md.....	122, 119. 50
Chief Quartermaster, Department of the East.....	140, 139. 78
Chief Quartermaster, Department of California.....	100, 570. 00
Chief Quartermaster, Department of the Lakes.....	339, 849. 48
Other departments, depots, and posts.....	76, 984. 14
Total.....	5, 529, 949. 78

COLLECTIONS BY PAY DEPARTMENT.

There were placed to the credit of the appropriation for clothing and equipage for the fiscal year 1897-98, from collections by the Pay Department, the following amounts, viz:

On account of clothing drawn by enlisted men in excess of their clothing-money allowance.....	\$38, 509. 80
On account of purchases of discharges by enlisted men under section 4 of the act of Congress approved June 16, 1890, and which, under the decision of the Secretary of War, are placed to the credit of the appropriation for clothing and equipage.....	4, 625. 00
Total.....	43, 134. 80

ISSUES TO THE MILITIA.

The following are the issues of clothing, equipage, and other stores that were made to the governors of the several States and Territories, for use of the militia, under the provisions of the act of Congress of July 1, 1897, for which the respective appropriations of the Quartermaster's Department have been reimbursed from the appropriation for arming and equipping the militia, viz:

States and Territories.	Clothing and equipage.	Regular supplies.	Army transportation.
Alabama.....	\$3, 658. 78		
Arizona.....	953. 72		
Arkansas.....	10, 536. 67		
California.....	466. 50	\$292. 50	
Colorado.....	339. 98		
Connecticut.....	7, 143. 43		
Delaware.....	4, 501. 26		
District of Columbia.....	4, 093. 43	84. 74	
Florida.....	1, 839. 42		
Georgia.....	3, 046. 16		
Idaho.....	820. 29		
Illinois.....	4, 558. 72		
Indiana.....	510. 54		
Iowa.....	6, 713. 56		
Kansas.....	3, 492. 82		
Kentucky.....	4, 310. 57		
Louisiana.....	2, 517. 18		
Maine.....	1, 381. 17		
Maryland.....	692. 72		
Massachusetts.....	5, 673. 57		
Michigan.....	11, 960. 51		
Minnesota.....	66. 76		
Mississippi.....	3, 530. 95		

States and Territories.	Clothing and equipage.	Regular supplies.	Army transportation.
Missouri.....	\$8,670.51	\$96.00	.....
Nebraska.....	3,601.97	.....	.....
Nevada.....	1,041.87	.....	.....
New Hampshire.....	997.16	.....	.....
New Jersey.....	5,344.77	.....	.....
New Mexico.....	2,450.04	.....	.....
New York.....	574.64	.....	.....
North Carolina.....	6,790.80	.....	.....
North Dakota.....	3,460.16	.....	.....
Ohio.....	14,688.26	.....	\$284.85
Oklahoma.....	1,077.28	.....	.....
Pennsylvania.....	8,102.12	.....	.....
Rhode Island.....	2,354.40	.....	.....
South Carolina.....	6,244.56	.....	.....
South Dakota.....	2,478.80	.....	.....
Tennessee.....	7,026.51	.....	.....
Texas.....	9,772.94	.....	.....
Utah.....	1,184.09	.....	.....
Vermont.....	1,673.99	.....	.....
Virginia.....	10,780.33	.78	.....
Washington.....	4,078.48	.....	.....
West Virginia.....	943.78	.....	.....
Wisconsin.....	896.10	.....	.....
Wyoming.....	1,362.18	.....	.....
Deduct credit placed to allotment of State of Indiana.....	189,309.45	474.02	284.85
Deduct credit placed to allotment of State of Maine.....	10.00	.....	.....
.....	187.60	.....	.....
Total.....	189,111.85	474.02	284.85

a \$61.08 of this amount was not actually settled by the Treasury Department during the fiscal year, and will appear in the next annual report.

SALES TO THE MILITIA.

There were sold by this Department during the fiscal year to the governors of the following States, under the act of Congress approved February 24, 1897, clothing, equipage, and other supplies to the total value of \$20,509.71, viz:

States.	Clothing and equipage.	Army transportation.
Alabama.....	\$685.68	\$17.32
Arizona.....	239.85	2.51
Michigan.....	11,118.50	.....
Pennsylvania.....	8,314.50	81.35
Total.....	20,509.71	101.18

SALES TO THE UNITED STATES MARINE CORPS.

Notwithstanding the great demand upon the Department from the Army for tentage, the Quartermaster-General, upon the request of the Commandant of the United States Marine Corps, recommended and obtained authority from the Secretary of War to sell to said officer—

Hospital tents, complete	6
Wall tents, complete	150
Shelter tent halves, with poles and pins	2,000

Also a considerable quantity of spare parts for tentage. The total amount realized from said sale amounted to \$2,882.75, all of which has been placed to the credit of the appropriation for clothing and equipage.

SALES TO THE GEOLOGICAL SURVEY.

Under paragraph 3692, Revised Statutes, and under special authority of the Secretary of War, there were sold to the Director of the United States Geological Survey, for use of various surveying parties in the field, tents to the value of \$229.22, which amount has been placed to the credit of the appropriation for clothing and equipage.

SALES AT AUCTION.

There was realized at the general depots of the Quartermaster's Department, from sales of old pattern and condemned articles of clothing, equipage, cuttings, etc., the sum of \$3,404.24, all of which has been covered into the Treasury of the United States and credited to miscellaneous receipts as required by law. The expenses connected with making these sales amounted to \$212.76, which have been paid from the appropriation for clothing and equipage.

CLOTHING FOR DISCHARGED PRISONERS.

Under the act of Congress approved March 16, 1896, all prisoners upon release from confinement under court-martial sentences are to be furnished with a suit of outer clothing to the value of \$10 per suit. Under this provision of the law there were remitted to various officers during the fiscal year \$4,370 from the appropriation for the support of the Army. The remittance on this account during the previous fiscal year amounted to \$4,221.25.

ISSUES TO INDIAN PRISONERS OF WAR.

There are held in captivity at Fort Sill, Okla., 298 Apache Indian prisoners of war, consisting of 68 men, 105 women, 70 boys, and 55 girls, the sustenance of which, except as to subsistence, falls upon the Quartermaster's Department.

The following are the expenditures connected therewith, viz:

Fuel.....	\$2,362.06
Forage	2,755.80
Transportation	748.00
Clothing and equipage.....	1,170.14
Employees.....	1,200.00

Total 8,234.00

a decrease of \$3,420.06 from the expenditures during the previous fiscal year.

Independent of the routine work connected with purchases, manufactures, and issues, much thought has been devoted to studying the questions connected with improving the quality of the clothing and equipage supplies, among which may be named the following particular items:

BLOUSES—NEW PATTERN.

As indicated in the last annual report of the clothing-supply branch, several sets of blouses of new and revised pattern, based upon actual measurements taken of several hundred men of the different arms of the service, were tried at various posts, and it was found that a satisfactory solution had been reached. The new-pattern blouses consist of nine sizes, instead of six, as heretofore. Standards and specifications were

adopted, and manufactures had just been ordered when the war with Spain began. It was found impossible at this particular time to start the new enterprise, and consequently all blouses purchased and manufactured during the last five months conformed to the old pattern.

SHOES.

Shoes made of somewhat lighter calfskins and upon lasts conforming more closely to the anatomy of the human foot have also been adopted, and contracts had been entered into just prior to the commencement of the war. Those procured are of unexceptionable quality and make, hand sewed, and many manufacturers who have carefully examined both the adopted lasts and shoes declared that they could not suggest further improvements. All shoes now being procured under the contracts awarded within the last two months conform to these new patterns, except that the soles are permitted to be sewed on the Goodyear welt machine. The advisability of substituting the latter mode of fastening the soles will form the subject of future consideration, as well as several suggestions that have been made by prominent manufacturers to permit Cordovan and Titan calfskins to enter into competition.

The shoes procured at the outbreak of hostilities, and which were found to be essential for the immediate equipment of the organizations then being mustered into the service, did not conform to the newly adopted army shoes. The latter class of shoes is not manufactured for the trade. Shoes of various descriptions had to be purchased, and it was found that as a rule they were good and serviceable. In a few instances they proved otherwise, but this could not be avoided.

CLOTHING OF LIGHTER TEXTURE FOR SOUTHERN AND TROPICAL COUNTRIES.

The question of furnishing the enlisted men of the Army stationed in the South and in tropical countries with clothing suitable for those latitudes has also formed the subject of consideration.

Pending a final conclusion, the calls from the Army for cotton clothing have been met by supplying twilled and plain duck garments to the troops in Cuba, Porto Rico, and as far as practicable to the various organizations in camp in this country.

UNDERWEAR.

The Army has been abundantly supplied with light cotton underwear, which has undoubtedly materially aided in alleviating the condition of the men. Steps have also been taken to procure an adequate supply of wool knit undershirts of a much better quality than formerly issued to the Army. The grade of wool will be much finer, the per centum of cotton will be 40 instead of 50, and they will be of light and heavy qualities, suitable for cold and warm climates.

MOSQUITO HEAD NETS, RUBBER PONCHOS, AND HAMMOCKS.

Of these articles of equipment, so necessary to protect the men in the unhealthy climate of Cuba, an entire outfit has also been procured and furnished by this Department. To what extent they have been made use of in active campaign this office has as yet not been informed.

BADGES AND DESIGNATING FLAGS.

General Orders, No. 99, c. s., published by the Adjutant-General of the Army, prescribe the badges and flags for the several brigades, divisions, and corps composing the Army. Of these a complete outfit for 8 corps has been procured and distributed.

COLORES AND GUIDONS.

Contracts for such colors and guidons as might be needed by the various volunteer organizations were also entered into. They have been procured as fast as applied for. Under existing regulations these colors should all be embroidered in silk; but it being impossible to have such work executed within a reasonable time, the Secretary of War approved the recommendation of the Quartermaster-General that the inscription and coat of arms be painted in the same manner as was done during the civil war.

BAND INSTRUMENTS.

Great difficulty was experienced in supplying the many military bands with instruments, as required by paragraph 1201, Army Regulations. They were procured by purchase in open market, of the best domestic production obtainable, and it was even found necessary to resort to the purchase of some of foreign make. It has been found impossible to supply all the regiments, and owing to the sudden cessation of hostilities all action to supply instruments to volunteer organizations will be suspended until the final status of each particular regiment shall have been determined.

GRATUITOUS ISSUES OF CLOTHING.

By direction of the Secretary of War, all the clothing of the troops returning from Cuba will be destroyed to prevent contagion, and it has been decided to issue to each of the men, free of charge, another suit in lieu of the one destroyed. Similar issue will also be made to the men in hospitals whose clothing has been destroyed for like reasons.

TENTS OF DRAB COLOR.

The advisability of changing the color of the tentage for the Army to a drab, similar to certain equipments supplied by the Ordnance Department, has been under consideration for several years. In order to ascertain whether a change would be desirable, the Depot Quartermaster at Philadelphia, on the 28th of August, 1897, was directed to dye for experimental purposes sufficient of the unbleached duck to manufacture 100 wall tents and flies. The tents thus made were distributed for trial, one to each post in the Army, and reports called for.

These reports were almost unanimous in favor of the proposed change, for the following reasons:

1. The glare of the sun will be avoided.
2. In time of hostilities the tents will be less discernible from a distance.
3. The difference in appearance between old and new canvas will be less marked, thereby decreasing to a certain extent the demand for new tentage.

4. The dyed canvas may be found to lessen damage from mildew, to which all unbleached duck, if not properly dried before storage, is subjected.

The only objection was made by a few officers who are of the opinion that the tent, when closed on dark days, is not sufficiently light on the inside for reading or writing. Many officers, however, are of distinctly opposite views. They prefer even a darker color.

On the 14th of December last a report was made to the Secretary of War recommending that the drab-colored duck for the tentage be adopted, to be of the same shade as the duck used by the Ordnance Department, and that this be also the future color for the fatigue hat, fatigue clothing, leggings, and shelter tent. In order to insure a fast and even color, it would be well to have the material dyed in the fiber.

These recommendations were approved by the Secretary of War, and the Department was contemplating how best to inaugurate the changes involved, when other and more important demands were made upon this office.

The subject, however, was never lost sight of, and considerable duck and tentage recently purchased has been of the new color. Sufficient time to obtain reports upon results has as yet not elapsed.

COMBINED SHELTER TENT AND CLOTHING ROLL.

After examining the sample of a combined shelter tent and clothing roll, submitted by Maj. Charles W. Williams, Quartermaster, U. S. A., referred to in the last annual report, and believing that the same possessed qualities equally as good as those contained in a similar tent brought to the attention of the Department by another inventor, and Major Williams consenting, this Department concluded to advise the officer named to take out letters patent. Application was made to the Secretary of War, on the 8th of November last, under paragraph 2 of the act of Congress making appropriations for sundry civil expenses for the Government for the fiscal year ending June 30, 1884, and for other purposes. A patent was granted on the 4th of January last to Major Williams, under section 4886 of the Revised Statutes, without the payment of any fee, so that the Government or any of its officers or employees in the prosecution of work for the Government or by any other person in the United States may make use of the invention without the payment of any royalty. The number of the patent is 596767. None have thus far been manufactured.

CLOTHING AND EQUIPAGE FOR TROOPS IN ALASKA.

All the troops ordered by the War Department to the Territory of Alaska during the last and present fiscal years have been supplied with sufficient quantities of clothing and equipage suitable only for the extreme cold weather prevailing in that country. Among the articles furnished were some of the improved conical wall tents, invented by Maj. Charles W. Williams, Quartermaster, U. S. A., referred to in last year's annual report.

CONCLUSION.

In concluding this report, I desire to call special attention to one important fact, which has conclusively been demonstrated during the period of the preparation for and prosecution of the war just terminating.

It has an important bearing upon the economic side of the question of providing the clothing and equipage supplies for the Army in the future.

Heretofore all the principal articles of clothing and equipage were manufactured at the general depots of the Quartermaster's Department from materials purchased under contracts. This was found to be well adapted to times of peace, but the system was not sufficiently elastic to answer fully in times of war, when the demands are sudden and great. The reason why the department was successful in coping with the difficulties of providing sufficient clothing, and which presented themselves at the commencement of the war, was principally due to purchases under contracts. The prices are entirely in favor of the contract system. All that will be necessary is a rigid and fearless inspection, so that the goods will conform strictly to specification requirements.

The manner of carrying this proposition into effect should form the subject of a very careful future study.

Very respectfully,

WM. S. PATTEN,

Colonel, Quartermaster's Department, U. S. A.

The QUARTERMASTER-GENERAL.

* * * * *

WAR DEPARTMENT,

QUARTERMASTER-GENERAL'S OFFICE,

Washington, D. C., October 20, 1898.

SIR: Under Special Orders, No. 164, Adjutant-General's Office, current series, having been assigned to duty in the office of the Quartermaster-General as one of the principal assistants, in charge of all wagon transportation, and the purchase of all cavalry and artillery horses and regular supplies, etc., while so acting to have the rank of colonel, I have the honor to submit the following report of the operations of that branch for the fiscal year 1897-98, and for period July 1, 1898, to August 31, 1898.

Respectfully,

C. P. MILLER,

Colonel, Quartermaster's Department.

The QUARTERMASTER-GENERAL OF THE ARMY.

The Quartermaster-General supervises and controls, through this branch, the equipment for the transportation service of the Army, including wagons, ambulances, and vehicles, draft and pack animals, and cavalry and artillery horses.

This branch has charge of all matters relating to the procurement and distribution of supplies, stoves, and heating apparatus, and repair and maintenance of same for heating barracks and quarters; of ranges, stoves, and apparatus for cooking; of fuel and lights for enlisted men, guards, hospitals, storehouses, and offices, and for sales to officers; of equipment of bakehouses to carry on post bakeries; of the necessary furniture, text-books, paper, and equipments for the post schools; for the tableware and mess furniture for kitchens and mess halls for enlisted men; of forage and bedding for the public animals of the Quartermaster's Department, and for the authorized number of officers' horses; of straw for soldiers' bedding; of stationery and blank books for the

Quartermaster's Department, certificates for discharged soldiers, blank forms for the Paymaster's and Quartermaster's departments, and of the necessary correspondence connected with the work of this branch.

This branch has also charge of matters relating to all contracts to which the Quartermaster's Department is a party.

CONTRACTS.

During the fiscal year ended June 30, 1898, 1,404 contracts were received, examined, and filed in this office. Seven hundred and ten were for 270,543,952 pounds of coal, 61,099 cords of wood, 11,250 bushels of charcoal, 31,173,928 pounds of oats, 54,471,304 pounds of hay, 7,588,200 pounds of straw, 4,015,000 pounds of barley, 4,204,759 pounds of bran, 40,000 pounds of middlings, and 2,297,366 pounds of corn; 49 for transportation; 218 for clothing, camp, and garrison equipage; 98 for leases; 11 for roadways and sidewalks; 25 for water and water supply; 11 for telephone service; 4 for electric supplies; 3 for repair of bridges; 2 for shoeing public animals; 10 for printing; 63 for buildings and building material; 3 for sanitary work; 1 for construction of railroad platform; 2 for granolithic pavement; 2 for illuminating gas; 2 for gasoline; 2 for mineral oil; 1 for fresh beef; 26 for horses and mules; 1 for cobblestone gutters; 18 for heating apparatus; 22 for plumbing; 5 for target ranges; 2 for repair of roads; 1 for repair of wagons; 5 for sewerage system; 2 for boilers and fixtures; 9 for repair of buildings; 1 for steel trestle and tank; 4 for garbage cremators; 3 for gas piping; 1 for machinery; 3 for drainage and grading; 2 for repair of water tanks; 2 for flagstaves; 5 for repair of wharves; 1 for construction of wall; 1 for picket fence; 1 for repair of railroad trestle; 1 for repair of steamer; 9 for tableware and kitchen utensils; 1 for rostrum; 1 for flagging and paving blocks; 2 for ambulance harness; 1 for field filters; 1 for sinking well; 3 for field desks; 2 for packing boxes and crates; 2 for water distillers; 1 for filters; 1 for ice plant; 1 for disinfectors; 3 for typewriting machines; 1 for box lockers; 1 for headstones; and 41 for charter of vessels.

During the period from July 1, 1898, to August 15, 1898, 267 contracts were received, examined, and filed in this office. One hundred and twenty-six were for 2,628,533 pounds of oats, 4,348,320 pounds of hay, 195,833 pounds of bran, 779,800 pounds of straw, 469,000 pounds of barley, 25,833 pounds of corn, 50,875,100 pounds of coal, 16,884 cords of wood, and 1,950 bushels of charcoal; 9 for transportation; 22 for leases; 2 for constructing steam launches; 8 for buildings; 29 for charter of vessels; 6 for water system; 1 for field desks; 36 for clothing, camp, and garrison equipage; 7 for tableware and kitchen utensils; 5 for telephones; 1 for mineral oil; 2 for illuminating gas; 1 for field filter; 4 for remodeling heating apparatus; 1 for repair of buildings; 1 for plumbing; 1 for ambulances; 1 for lamps; 3 for packing boxes; and 1 for gas piping.

PURCHASES AT GENERAL DEPOTS.

The following are the payments made by quartermasters for purchases for the Army at general depots for use thereat and for shipment elsewhere during the fiscal year ended June 30, 1898, from appropriations pertaining to that period.

Depot.	Regular supplies.	Incidental expenses.	Barracks and quarters.	Army transportation.	Total.
New York	\$57,249.81	\$7,469.97	\$228.98	\$23,661.93	\$88,610.69
Philadelphia	18,072.65	726.62	1,691.37	42,471.16	62,861.80
Jeffersonville	40,924.05	1,776.35	73.35	28,594.50	71,368.25
San Francisco	59,221.07	4,527.62	20,806.85	82,162.89	116,718.43
Washington	69,489.53	1,215.61	247.39	116,362.83	187,315.86
St. Louis	10,161.61	2,704.84	4.50	28,318.24	41,189.19
Total.....	256,118.72	18,421.01	23,052.44	271,571.55	568,163.72

TABLEWARE AND KITCHEN UTENSILS.

Total cost of all tableware and kitchen utensils purchased at Philadelphia depot during fiscal year 1897-98 amounted to \$19,593.66.

Field ranges, bread ovens, field desks, and paulins purchased from July 1, 1897, to August 31, 1898.

	July 1, 1897, to Apr. 1, 1898.	Apr. 1 to July 1, 1898.	July 1 to Aug. 31, 1898.	Total.	
				Number.	Cost.
Field ranges		4,130	1,000	5,180	\$106,742.00
Bread ovens		100	50	150	20,540.00
Field desks		4,167	1,267	5,434	88,471.80
Paulins		2,480	2,190	4,580	87,644.20
Grand total					253,394.02

Public animals purchased.

FROM JULY 1, 1897, TO APRIL 1, 1898.

	Number of animals.	Total cost.	Average cost.
Cavalry horses	668	\$84,274.50	\$126.15
Artillery horses	118	16,260.00	137.79
Draft horses	89	5,776.50	148.11
Riding horses	1	123.75	123.75
Draft mules	215	21,466.48	99.84
Pack mules	88	2,771.00	72.93
Total.....		130,672.83	

FROM APRIL 1, 1898, TO JUNE 30, 1898.

Cavalry horses	8,669	\$863,232.82	\$99.57
Artillery horses	1,776	287,478.11	133.71
Riding horses	1,944	141,880.00	72.98
Bell horses	32	1,595.00	51.45
Draft horses	1,132	141,736.75	124.67
Pack horses	40	1,200.00	30.00
Draft mules	13,719	1,515,976.90	110.50
Pack mules	2,667	221,774.00	83.15
Total.....		3,124,873.58	

FROM JULY 1, 1898, TO AUGUST 31, 1898.

Cavalry horses	2,074	\$215,581.00	\$103.93
Artillery horses	775	96,329.00	124.27
Riding horses	171	22,450.00	131.28
Draft horses	5	825.00	165.00
Draft mules	3,796	411,631.50	108.43
Total.....		746,816.50	

Wagons and harness purchased.

FROM JULY 1, 1897, TO APRIL 1, 1898.

	Number of each.	Total amount.	Average cost.
Spring wagons	8	\$2,295.00	\$286.87
Wagonettes	4	944.00	236.00
S. S. Harness	30	900.00	30.00
Total		4,139.00	.....

FROM APRIL 1, 1898, TO JUNE 30, 1898.

Harness, S. S.	22,437	\$278,437.13	\$12.41
Army wagons	304	29,667.00	97.59
Escort wagons	100	7,500.00	75.00
Farm wagons	3,566	234,880.00	65.87
Spring wagons	61	17,021.00	279.03
Wagonettes	8	682.60	227.58
Ambulances:			
Rucker	400	102,950.00	257.37
Red Cross	25	5,847.50	233.90
Miscellaneous wagons	210	11,790.00	56.19
Total		688,784.23	.....

FROM JULY 1, 1898, TO AUGUST 31, 1898.

Harness, S. S.	5,575	\$80,012.05	\$14.36
Army wagons	300	31,800.00	106.00
Escort wagons	9	1,084.75	120.52
Farm wagons	39	4,062.75	104.17
Spring wagons	9	1,197.00	133.00
Wagonettes	5	858.00	171.60
Ambulances:			
Rucker	100	20,000.00	200.00
Red Cross	34	7,412.00	218.00
Miscellaneous wagons	14	1,849.50	96.39
Total		147,776.05	.....

Total number of animals, wagons, harness, etc., purchased during the period from April 1, 1898, to August 31, 1898, inclusive.

Cavalry horses	10,743
Artillery horses	2,551
Pack horses	40
Draft horses	1,137
Riding horses	2,115
Bell mares	32
Draft mules	17,515
Pack mules	2,667
Harness, S. S.	28,012
Army wagons	604
Escort wagons	109
Farm wagons	3,605
Spring wagons	70
Wagonettes	8
Miscellaneous wagons	224
Ambulances:	
Rucker	500
Red Cross	59

COAL CONTRACTED FOR FOR TRANSPORT VESSELS.

Ten thousand tons (more or less, as Government may require) Georges Creek Big Vein Cumberland coal, at \$3.75 per ton of 2,240 pounds, delivered as follows:

	Tons.
Tampa, Fla.	3,306
Fernandina, Fla.	5,547
Total	8,853

Ten thousand tons (more or less, as Government may require) Georges Creek Cumberland coal, at \$4.05 per ton of 2,240 pounds, delivered as follows:

	Tons.
Santiago, Cuba	3, 978
Ponce, Porto Rico	6, 422
Total	10, 400

One thousand two hundred and twenty-five tons Pocahontas coal, at \$3.75 per ton of 2,240 pounds, delivered at Port Tampa, Fla. Total for Port Tampa, 1,225 tons.

COAL FOR MANILA, FOR TRANSPORT VESSELS.

Five thousand two hundred tons Seaham, Wallsend, or Pacific Cooperative coal, at \$10.50 per ton.

Three thousand to 6,000 tons Seaham, Wallsend, or Pacific Cooperative coal, at \$10.50 per ton.

Four thousand eight hundred tons Seaham, Wallsend, or Pacific Cooperative coal, at \$10.50 per ton.

Total for Manila, 16,000 tons.

COAL FOR HONOLULU, FOR TRANSPORT VESSELS.

Nine thousand tons Nanaimo coal, at \$7.50 per ton.

Three thousand nine hundred tons Wallsend coal, at \$9 per ton.

Five thousand tons Seaham, Wallsend, or Pacific Cooperative coal, at \$9 per ton.

Two thousand nine hundred tons Cooperative Wallsend coal, at \$8.25 per ton.

Two thousand seven hundred tons coal equal to Seaham or Wallsend, at \$7.50 per ton.

Three thousand tons Wallarah coal, at \$7.37½ per ton.

Two thousand one hundred tons Seaham, Wallsend, or Pacific Cooperative coal, at \$7.50 per ton.

Total for Honolulu, 28,600 tons.

RÉSUMÉ.

	Tons.
Tampa, Fla	3, 306
Fernandina, Fla	5, 547
Santiago, Cuba	3, 978
Ponce, Porto Rico	6, 422
Port Tampa, Fla	1, 225
Manila, Philippine Islands	16, 000
Honolulu, Hawaiian Islands	28, 600
Total	65, 078

Very respectfully,

C. P. MILLER,
Colonel, Quartermaster's Department, U. S. A.

* * * * *

REPORT OF THE COMMISSARY-GENERAL OF SUBSISTENCE.

WAR DEPARTMENT,
OFFICE COMMISSARY-GENERAL OF SUBSISTENCE,
Washington, D. C., October 17, 1898.

SIR: I have the honor to submit the following report of the operations of the Subsistence Department for the fiscal year ending June 30, 1898, and subsequently to include the date of September 30, 1898.

RESOURCES AND EXPENDITURES.

The following statement exhibits the aggregate fiscal resources and expenditures of the department, and the balances at the close of the period mentioned:

RESOURCES.

Amounts in the Treasury to the credit of the appropriations of the Subsistence Department on June 30, 1897, as follows:

Subsistence of the Army, 1896.....	\$194, 693. 89	
Subsistence of the Army, 1897.....	203, 849. 89	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, acts March 2, 1889, and April 4, 1890	2, 044. 11	
Certified claims, 1896, act March 2, 1895	7, 586. 73	
Certified claims, 1897, act June 11, 1896	485. 13	
Claim for quartermaster stores and commissary supplies, acts July 4, 1864, and March 2, 1895	. 08	
Relief of sufferers from overflow of Mississippi River and its tributaries, and the Red River of the North (joint resolution approved April 7, 1897)....	108, 685. 11	
		\$517, 344. 94

Amounts to the credit of officers of the Subsistence Department and of officers doing duty in the Subsistence Department with the Treasurer, assistant treasurers, and designated depositories, and in their personal possession on June 30, 1897, as follows:

Subsistence of the Army, 1897.....	63, 893. 77	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, 1897, act June 11, 1896.....	608. 20	
Relief of sufferers from overflow of Mississippi River and its tributaries and the Red River of the North (joint resolution approved April 7, 1897) ..	20, 639. 62	
		85, 141. 59

Amounts refunded to the Treasury near the close of the fiscal year 1897, but not carried to the credit of the appropriation by June 30, 1897, as follows:

Subsistence of the Army, 1897	30, 958. 76
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Amounts appropriated for the Subsistence Department for the fiscal year ending June 30, 1898, and the period ending January 1, 1899, as follows:

Subsistence of the Army, 1898, act of March 2, 1897.	1, 600, 000. 00	
Subsistence of the Army, January 1, 1899, act of May 4, 1898, \$2, 739, 643.50; act of June 8, 1898, \$5, 000, 000; act of July 7, 1898, \$15, 367, 112.28; total.....	23, 106, 755. 78	
Subsistence of the Army, 1898—		
Certified claims, act July 19, 1897.....	149. 38	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, 1898, act June 4, 1897	4, 000. 00	
Certified claims, 1897, act July 19, 1897	177. 25	
Relief of people in mining regions of Alaska, act of December 18, 1897	200, 000. 00	
		24, 961, 082. 41

Amounts collected from various sources and refunded to the appropriations of the Subsistence Department on the books of the Treasury during the fiscal year 1898, as follows:

Subsistence of the Army, 1895, and prior years.....	\$215.69	
Subsistence of the Army, 1895, and prior years, transfer account.....	17.14	
Subsistence of the Army, 1896.....	1,077.25	
Subsistence of the Army, 1897.....	512.33	
Subsistence of the Army, 1898.....	261.84	
		\$2,084.25

Amounts received by officers of the Subsistence Department and by officers doing duty in the Subsistence Department from sales of subsistence stores to the following purchasers during the fiscal year 1898, and taken up for immediate disbursement under the following appropriations:

Subsistence of the Army, 1897: Sales to officers, \$39.46; refundment, \$32.75	72.21
Subsistence of the Army, 1898: Sales to officers, \$250,577.12; to enlisted men, companies, detachments, and hospitals, \$331,400.73; to post exchanges, \$29,953.31; to civilian employees, \$10,851.45; to Quartermaster's Department, \$60.74; to Indian agents, \$2,532.80; to Indian-school teachers, \$113; to Indian physician, \$276.56; to Indian Commission, \$54.13; to naval officers, \$62.88; to United States Boundary Commission, \$232.24; to Yosemite Park Commission, \$19.31; of surplus and condemned stores and property at auction, \$367.61; of boxes, barrels, etc., \$55.02; to Geological Survey, \$35.85	626,592.75

Amounts taken up by officers doing duty in the Subsistence Department on account of reclamations for stores lost, damaged, etc., and in correction of errors in their accounts, etc., during the fiscal year 1898....

Relief of people in mining regions of Alaska, act of December 18, 1897: Sales, \$7,176.15; refundments, \$54.86.....	7,231.01
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634,692.56

Amounts charged against officers still in the service on account of funds and stores alleged to have been lost by theft, etc., for which relief can only be obtained in the Court of Claims under sections 1059 and 1062, Revised Statutes, or from Congress, as follows:

Subsistence of the Army, 1880	75.92
Subsistence of the Army, 1889	24.04
	99.96

Total resources 26,231,404.47

EXPENDITURES.

Amounts expended on the books of the Treasury from the appropriations of the Subsistence Department during the fiscal year 1898, as follows:

Subsistence of the Army, 1895, and prior years, transfer account	0.14
Subsistence of the Army, 1896.....	29.75
Subsistence of the Army, 1897.....	1,500.54
Subsistence of the Army, 1898.....	5.00
Subsistence of the Army (certified claims) act January 19, 1897	149.38
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—	
Certified claims, 1897, act June 11, 1897.....	4.25
Certified claims, 1897, act July 19, 1897.....	177.25
Relief of sufferers from overflow of Mississippi River and its tributaries, and the Red River of the North, joint resolution approved April 7, 1897 ...	1,418.54

3,284.85

Amounts disbursed by officers of the Subsistence Department and officers doing duty in the Subsistence Department during the fiscal year 1898, as follows:

Subsistence of the Army, 1897.....	\$20, 033. 21	
Subsistence of the Army, 1898.....	2, 215, 877. 78	
Subsistence of the Army, January 1, 1899.....	3, 532, 243. 33	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, 1897, act June 11, 1896.....	119. 75	
Certified claims, 1897, act June 4, 1897.....	1, 101. 01	
Relief of sufferers from overflow of Mississippi River and its tributaries, and the Red River of the North, joint resolution approved April 7, 1897....	3, 914. 06	
Relief of people in mining region of Alaska, act of December 18, 1897.....	25, 630. 99	
		\$5, 798, 920. 13

Amount dropped by officers doing duty in the Subsistence Department in correction of errors in their accounts during the fiscal year 1898:

Subsistence of the Army, 1898.....	67. 49
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Amounts carried to the surplus fund on June 30, 1898:

Subsistence of the Army, 1896.....	195, 741. 39	
Subsistence of the Army, 1896, and prior years.....	215. 69	
Subsistence of the Army, 1896, and prior years, transfer account.....	17. 00	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, 1896, act of March 2, 1895.....	7, 586. 73	
		203, 560. 81

Amount transferred to the Pay Department, under instructions from the Secretary of War dated January 17, 1898:

Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, act of June 4, 1897.....	2, 881. 82	

Total expenditures..... 6, 008, 715. 10

BALANCES.

Amounts in the Treasury to the credit of the appropriations of the Subsistence Department on June 30, 1898 (in which is included the appropriation of \$15,367,112.28, made by act of July 7, 1898), as follows:

Subsistence of the Army, 1897.....	277, 753. 21	
Subsistence of the Army, 1898.....	706. 07	
Subsistence of the Army, January 1, 1899.....	3, 391, 478. 94	
Subsistence of the Army, January 1, 1899, act of July 7, 1898.....	15, 367, 112. 28	
Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, acts March 2, 1889, and April 4, 1890.....	2, 044. 11	
Certified claims, 1897, act June 11, 1896.....	480. 88	
Claim for quartermaster stores and commissary supplies, acts July 4, 1864, and March 2, 1895....	. 08	
Relief of sufferers from overflow of Mississippi River and its tributaries, and the Red River of the North, joint resolution approved April 7, 1897.	123, 992. 13	
Relief of people in mining regions of Alaska, act of December 18, 1897.....	174, 433. 87	
		19, 338, 001. 57

Amounts to the credit of officers of the Subsistence Department and of officers doing duty in the Subsistence Department with the Treasurer, assistant treasurers, and designated depositaries, and in their personal possession, on June 30, 1898, as follows:

Subsistence of the Army, 1898.....	59, 220. 23
Subsistence of the Army, January 1, 1899.....	814, 183. 06

Amounts to the credit of officers of the Subsistence Department, etc.—Continued.

Commutation of rations to prisoners of war in rebel States and soldiers on furlough—		
Certified claims, 1897, act June 11, 1896.....	\$488. 45	
Certified claims, 1897, act June 4, 1897.....	17. 17	
Relief of people in mining regions of Alaska, act of December 18, 1897.....		
	7, 166. 15	
		\$881, 075. 06

Amounts refunded to the Treasury near close of fiscal year 1898, but not carried to the credit of the appropriation by June 30, 1898, as follows:

Subsistence of the Army, 1898.....	1, 774. 61	
Subsistence of the Army, January 1, 1899.....	1, 738. 17	
		3, 512. 78

Amounts charged against officers still in the service on account of funds and stores alleged to have been lost by theft, etc., for which relief can only be obtained in the Court of Claims under sections 1059 and 1062, Revised Statutes, or from Congress, as follows:

Subsistence of the Army, 1880.....	75. 92	
Subsistence of the Army, 1889.....	24. 04	
		99. 96

Total balances..... 20, 222, 689. 37

THE DUTIES OF THE SUBSISTENCE DEPARTMENT.

The Subsistence Department is charged with the duty of purchasing and issuing to the Army such supplies as enter into the composition of the ration, and of procuring and keeping for sale to officers and enlisted men such articles as may from time to time be designated by the inspectors-general of the Army with the approval of the Secretary of War. Incidental to the above, it was the duty of the Department up to the year 1894 to provide bake ovens at posts and in the field, and for the repairs thereof; but by General Orders No. 40, Headquarters of the Army, August 29, 1894, the duty of building, furnishing, and repairing permanent bake ovens and procuring field ovens was transferred to the Quartermaster's Department, and the duty of issuing matches for lighting the fires and lamps for which fuel and illuminating supplies were issued by that Department was transferred to the Subsistence Department.

THE ORGANIZATION OF THE PERSONNEL OF THE SUBSISTENCE DEPARTMENT.

On April 1, 1898, the Subsistence Department of the Army consisted of the following officers, viz:

	Rank.	Number.
Commissary-General of Subsistence.....	Brigadier-general....	1
Assistant commissaries-general of subsistence.....	Colonel.....	2
Do.....	Lieutenant-colonel....	3
Commissaries of subsistence.....	Major.....	8
Do.....	Captain.....	8
Total.....		22

At that time there were 96 commissary sergeants in the service.

An "army corps" organized on the basis of the maximum organization prescribed by section 9 of the act for temporarily increasing the military establishment, approved April 22, 1898, consists of 3 divisions of 3 brigades each, each brigade consisting of 3 regiments of about 1,300 enlisted men each. The number of enlisted men to an army corps, therefore, would be the product of:

$$3 \times 3 \times 3 \times 1,300 = 35,100.$$

The number of subsistence officers necessary for the officering of an army corps is 13, consisting of 1 chief commissary of the army corps, 3 chief commissaries of divisions, and 9 commissaries of brigades.

Had all the officers of the Subsistence Department (22 in number, including the Commissary General of Subsistence and the assistants in his office) been ordered into the field in April, 1898, they would have been sufficient for properly officering with subsistence officers only 1 army corps of maximum enlisted strength and 1 army corps of two-thirds maximum enlisted strength. The country was at that time divided into 8 military departments, requiring the presence of a chief commissary of subsistence at the headquarters of each, and 16 of the officers of the Department were then performing duty as purchasing and depot commissaries, some of whom were also chief commissaries.

The strength of the enlisted force of the Regular Army on the active list on April 1, 1898, was limited to 25,000 men, exclusive of the hospital corps, which consisted of 725 enlisted men. This force was distributed in garrisons ranging from Maine to Alaska.

THE RATION.

The articles composing the ration of the enlisted men of the Army are fixed by law. Section 1146, Revised Statutes, prescribes that each ration shall consist of— $1\frac{1}{2}$ pounds beef, or $\frac{3}{4}$ pound pork; 18 ounces bread, or 18 ounces flour, and at the rate of 10 pounds coffee, 15 pounds sugar, 2 quarts salt, 4 quarts vinegar, 4 ounces pepper, 4 pounds soap, and $1\frac{1}{2}$ pounds candles to every 100 rations.

It further prescribes that—

The President may make such alterations in the component parts of the ration as a due regard to the health and comfort of the Army and economy may require.

Section 5 of the act of June 16, 1890 (26 Stat. L., 158), prescribes:

That the army ration now provided by law shall be increased by the addition thereto of one pound of vegetables, the proportion to be fixed by the Secretary of War.

Under the authority of the foregoing legislation, the ration officially established and promulgated by Army Regulations in force in April, 1898, was composed of the following kinds and quantities of articles for troops stationed where cooking was practicable:

Articles.	Quantities per ration.	
	Ounces.	Gills.
<i>Meat components.</i>		
Fresh beef.....	20	.....
or fresh mutton, when the cost does not exceed that of beef.....	20	.....
or pork.....	12	.....
or bacon.....	12	.....
or salt beef.....	22	.....
or, when meat can not be furnished, dried fish.....	14	.....
or pickled fish.....	18	.....
or fresh fish.....	18	.....

Articles.	Quantities per ration.	
	Ounces.	Gills.
<i>Bread components.</i>		
Flour	18	.....
or soft bread	18	.....
or hard bread	16	.....
or corn meal	20	.....
Baking powder for troops in the field, when necessary to enable them to bake their own bread	1½	.....
<i>Vegetable components.</i>		
Beans	2½	.....
or pease	2½	.....
or rice	1½	.....
or hominy	1½	.....
Potatoes	16	.....
or potatoes, 13½ ounces, and onions, 3½ ounces	16	.....
or potatoes, 11½ ounces, and canned tomatoes, 4½ ounces; or 4½ ounces of other fresh vegetables not canned, when they can be obtained in the vicinity of the post or transported in a wholesome condition from a distance	16	.....
<i>Coffee and sugar components.</i>		
Coffee, green	1½	.....
or roasted coffee	1½	.....
or tea, green or black	2½	.....
Sugar	2½	.....
or molasses		1½
or cane sirup		1½
<i>Seasoning components.</i>		
Vinegar		1½
Salt	1½	.....
Pepper, black	1½	.....
<i>Soap and candle components.</i>		
Soap	1½	.....
Candles (when illuminating oil is not furnished by the Quartermaster's Department)	1½	.....

The usual rule, subject to local or temporary controlling circumstances, for the issue of the meat portion of the ration in the Army is that seven days' fresh meat shall be issued to three days' salt meat.

In the case of troops traveling otherwise than by marching, or when for short periods they were separated from cooking facilities and did not carry cooked rations, they were allowed by the Army Regulations the following articles in lieu of all components of the ordinary ration:

Articles.		Per 100 rations.
Soft bread	pounds..	113½
or hard bread	do..	100
Beef, canned	do..	75
Baked beans, 1-pound cans	number..	33
or baked beans, 3-pound cans	do..	15
Coffee, roasted	pounds..	8
Sugar	do..	15

After troops had subsisted upon the travel ration for four consecutive days they were allowed canned tomatoes, in addition to the travel ration, at the rate of 1 pound of tomatoes per man per day.

The various kinds of rations, according to specific designations, issued in actual service are shown by the following tables, which also show the components of each, and the weight of 100 rations and of 1 ration each:

TABLE I.—The "Garrison" ration.

Articles.	Per 100 rations.	Articles.	Per 100 rations.
<i>Meat components.</i>		<i>Vegetable components—Continued.</i>	
Fresh beef.....	125	Potatoes.....	Pounds. 100
or fresh mutton, when the cost does not exceed that of beef.....	125	or 30 pounds of other fresh vegetables, not canned, when they can be obtained in the vicinity of the post or transported in a whole-some condition from a distance...	30
or pork.....	75	<i>Coffee and sugar components.</i>	
or bacon.....	75	Coffee, green.....	10
or salt beef.....	137.5	or roasted coffee.....	8
or, when meat can not be furnished, dried fish.....	87.5	or tea, green or black.....	2
or pickled fish.....	112.8	Sugar.....	15
or fresh fish.....	112.8	or molasses.....	a 2
or canned salmon.....	100	or cane sirup.....	a 2
<i>Bread components.</i>		<i>Seasoning components.</i>	
Flour.....	112.8	Vinegar.....	a 1
or soft bread.....	112.8	Salt.....	4
or hard bread.....	100	Pepper, black.....	0.25
or corn meal.....	125	<i>Soap and candle components.</i>	
Baking powder for troops in the field when necessary to enable them to bake their own bread.....	4	Soap.....	4
<i>Vegetable components.</i>		Candles (when illuminating oil is not furnished by the quartermaster's department).....	1.5
Beans.....	15	Weight of 100 rations, 337.75 pounds.	
or peas.....	15	Weight of 1 ration, 3.38 pounds.	
or rice.....	10	In proportion of various components as ordinarily issued.	
or hominy.....	10		
Potatoes.....	100		
or potatoes.....	80		
and onions.....	20		
or potatoes.....	70		
and tomatoes, canned.....	30		

a Gallons.

TABLE II.—The "Field" ration.

Articles.	Per 100 rations.
<i>Pounds.</i>	
Bacon.....	75
Hard bread.....	100
Beans or peas.....	15
or rice or hominy.....	10
Potatoes, onions, and canned tomatoes, when possible.....	100
Coffee, roasted.....	8
Sugar.....	15
Vinegar.....	a 1
Candles.....	1.5
Soap.....	4
Salt.....	4
Pepper, black.....	.25
Weight of 100 rations, 330.75 pounds.	
Weight of 1 ration, 3.31 pounds.	
In proportion of various components as ordinarily issued.	

a Gallon.

TABLE III.—The "Travel" ration, used on journeys by railroads, stages, or steamboats.

Articles.	Per 100 rations.
[For first four days.]	
Hard bread.....	Pounds. 100
Canned beef.....	75
Beans, baked, 3-pound cans.....	45
Coffee, roasted.....	8
Sugar.....	15
Weight of 100 rations, 243 pounds.	
Weight of 1 ration, 2.43 pounds.	
[After fourth day add:]	
Tomatoes, gallon cans.....	100
Weight of 100 rations, 343 pounds.	
Weight of 1 ration, 3.43 pounds.	

TABLE IV.—The "Travel" ration for journeys when liquid coffee is furnished.

Articles.	Per 100 rations.
Pounds.	
Hard bread.....	100
Beef, canned.....	75
Beans, baked, 3-pound cans.....	45
Liquid coffee.....	\$37.5
or for purchase of liquid coffee.....	\$21
Weight of 100 rations, 220 pounds.	
Weight of 1 ration, 2.2 pounds.	
a Gallons.	

TABLE V.—The "Emergency" ration, as authorized by General Orders, No. 49, Headquarters of the Army, Adjutant-General's Office, series of 1896.

Articles.	Per 100 rations.
Pounds.	
Hard bread.....	100
Bacon.....	62½
Pea meal.....	25
Coffee, roasted and ground.....	12½
Saccharin.....	100
Salt.....	4
Pepper, black.....	½
Tobacco, plug.....	3½
Bags, wrappers, etc.....	3
Weight of 100 rations, 207½ pounds.	
Weight of 1 ration, 2.07 pounds.	

STORES FOR SALES TO OFFICERS AND ENLISTED MEN.

In order that, in case of war, a definite policy should be established in respect to taking into the field supplies authorized to be kept by the Subsistence Department for sales to officers and enlisted men, under section 1144, Revised Statutes, the Acting Commissary-General of Subsistence, on April 9, 1898, addressed a letter to the Secretary of War, which resulted in the adoption of the following list of stores to be furnished for sales in the field:

All articles which are components of the ration and the following:

Apples, canned.	Tobacco, smoking, two varieties.
Apricots, dried.	Soap, toilet.
Bacon, breakfast.	Soap, laundry.
Baking powder.	Metal polish, two varieties.
Cheese, American, Edam.	Tripoli flour.
Chocolate, plain, vanilla.	Buttons, trousers.
Coffee, Java-Mocha.	Needlebooks, with needles.
Corn, green, canned.	Pins.
Crackers, three varieties.	Thread, cotton, white.
Effervescing drinks, such as ginger ale.	Thread, linen, white.
Ham, deviled, canned.	Thread, linen, black.
Ham, sugar-cured.	Envelopes.
Milk, canned.	Ink, black.
Oatmeal, one variety.	Paper, note.
Peaches, canned and evaporated	Pencils, lead.
Pease, American, canned.	Penholders.
Preserves, Damson, canned.	Pens.
Prunes.	Basins, hand.
Sardines.	Blacking, shoe.
Soup, four varieties.	Brooms, whisk.
Sugar, white.	Brushes, blacking.
Sirup.	Brushes, hair.
Tongue, beef, canned.	Brushes, tooth.
Ginger, ground.	Can openers.
Jam, blackberry.	Combs, coarse.
Jelly, currant.	Combs, fine.
Lime juice.	Combs, pocket.
Mustard, ground.	Handkerchiefs, linen.
Pepper, red, Cayenne, Chile-Colorado.	Handkerchiefs, silk.
Pickles.	Matches, safety.
Salt, table.	Paper, toilet.
Sauce, cranberry.	Shoestrings.
Sauce, table, Worcestershire.	Towels.
Pipes, brierwood, one variety.	Toweling.
Tobacco, chewing.	

THE WAR WITH SPAIN.

Such were the conditions existing on the 20th day of April, 1898, when the joint resolution recognizing the independence of the people of Cuba and directing the President to use the land and naval forces of the United States for the purpose of carrying the resolution into effect was approved by the President of the United States.

Already, in anticipation of the actual breaking out of hostilities between the United States and Spain, the Acting Commissary-General of Subsistence had, at the beginning of the month of April, 1898, advised all chief and purchasing commissaries to have at all posts travel rations adequate to the wants of the full garrisons if ordered to move, and to ascertain and list the houses from whom articles of the ration and of the travel ration could be had at once if wanted in large quantities. By actual inspection of the returns of subsistence stores for the preceding month on file in the office of the Commissary-General of Subsistence there were found to be on hand at each post more than thirty days' supplies for the number of men at each and thirty days' supplies of stores classed as perishable, besides supplies for sales (canned goods, etc.) in equal or greater quantities. It had also at that time been recommended by the Acting Commissary-General of Subsistence that orders which might issue directing any garrison to change station should include a requirement that, if the whole garrison moved, all salted meats should be taken with it, and proportionately if only a part moved, and that at least thirty days' rations (excluding fresh beef) should be taken.

Some movements of the artillery toward the seacoast had been ordered during the month of March, 1898, but it was not until April 15, 1898, that orders were issued from the office of the Adjutant-General of the Army directing a general movement of the Regular Army from the posts scattered throughout the eight military departments, covering almost the entire area of the United States, to the places of concentration at Chickamauga National Park, New Orleans, Mobile, and Tampa. The orders issued that day required the troops in all cases to take with them thirty days' field rations, and an order of the following day directed all the articles of the ration and stores for sales at the various posts on railroads, where economy would be subserved, over and above a reasonable amount to be left for the troops retained at the posts, to be invoiced and shipped to the commissaries at the camps to which the troops of each post were transferred, the stores to follow the departure of the troops with as little delay as practicable. This was with the view of utilizing the stock of subsistence stores on hand at the posts instead of leaving them to deteriorate in the hands of the depleted garrisons.

An officer of the Subsistence Department was already on duty at New Orleans as purchasing and depot commissary, and on April 19, 1898, an order was issued assigning regular officers of the Subsistence Department to duty on the staffs of the commanding generals at Chickamauga National Park, Mobile, and Tampa. On April 22, 1898, the President approved the act to provide for temporarily increasing the military establishment, and on April 23, 1898, he issued his proclamation calling for 125,000 volunteers. On April 25 he approved the act declaring that war existed between the United States and the Kingdom of Spain, and on April 26 he approved the act for the better organization of the line of the Army, which increased the Regular Army by the addition of about 36,000 enlisted men.

The first officers to enter the Volunteer Army as subsistence officers were five officers of the regular Subsistence Department, who were given the rank of lieutenant-colonel of volunteers. As the law authorizing these appointments required the appointees to serve as chief commissaries of subsistence of volunteers in the field, the Subsistence Department would have lost the services of all of them as purchasing and depot officers if it had not been for the act of June 29, 1898 (30 Stat. L., 525), which made the assignments of the officers of the volunteer staff subject to the same rules and regulations as those of the Regular Army. Three of these officers have been continuously in the field, and the remaining two have been doing purchasing and depot duty in addition to any duty required of them in connection with their volunteer commissions.

The following is a list of all subsistence officers of volunteers appointed between the passage of the act of April 22, 1898, and August 31, 1898, with the date of acceptance of commission, date of filing of official bond, and date of first assignment to duty in each case:

Chief commissaries of subsistence.

WITH THE RANK OF LIEUTENANT-COLONEL.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
1. Oliver E. Wood	U. S. A.	1898. May 10	1898. May 21	1898. May 25	1898. May 18	Chief commissary, Seventh Army Corps.
2. James N. Allison	U. S. A.	do ..	May 25	June 11	May 24	Chief commissary, Second Army Corps.
3. Tasker H. Bliss	U. S. A.	do ..	June 9	June 14	May 23	Chief commissary, Sixth Army Corps.
4. Edward K. Dravo	U. S. A.	do ..	May 21	do ..	.....	Chief commissary, Department of the Gulf, and purchasing commissary, Atlanta, Ga.
5. William H. Baldwin ..	U. S. A.	do ..	May 25	June 17	.....	Chief commissary, Department of California, and purchasing commissary, San Francisco, Cal.
6. Charles H. Grierson ...	U. S. A.	do ..	June 1	June 9	June 23	Chief commissary, Fourth Army Corps.
7. David L. Brainard	U. S. A.	do ..	May 18	May 20	May 17	Chief commissary, Department of the Pacific.

WITH THE RANK OF MAJOR.

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	Date.	Duty.
1. James O. Varnedoe ...	Ga.	1898. May 17	1898. May 30	1898. June 5	1898. June 14	Commissary, First Division, First Army Corps.
2. James M. Moody	N. C.	do ..	May 28	May 28	June 1	Staff of Major-General Coppinger.
3. Samuel W. Hay	Pa.	do ..	June 4	June 9	June 13	Commissary, Second Division, Second Army Corps.
4. Wm. M. Abernethy ...	Mo.	May 19	June 6	June 14	June 11	Commissary, First Division, Second Army Corps.
5. David B. Wilson	U. S. A.	May 20	June 3	June 15	June 5	Assistant to chief commissary, Fifth Army Corps.
6. Hugh J. Gallagher ...	U. S. A.	do ..	do ..	do ..	June 7	Commissary, Cavalry Division, Fifth Army Corps.
7. James C. Mullikin ...	Md.	June 10	June 18	June 20	June 22	Commissary, Second Division, Third Army Corps.
8. Sydney A. Cloman ...	U. S. A.	May 28	June 3	.....	May 14	Commissary, First Expedition to Philippines.
9. Philip Mothersill	N. Mex.	do ..	June 13	June 23	June 20	Commissary, Third Division, First Army Corps.
10. Edmund W. Bach	Mont.	do ..	June 14	June 24	July 2	Chief Commissary, Department of Dakota, and purchasing commissary, St. Paul, Minn.
11. Robert L. Longstreet	Ga.	May 31	June 14	June 16	June 20	Commissary, Third Division, Seventh Army Corps.
12. Evylyn S. Garnett ...	Ark.	do ..	do ..	June 18	June 22	Commissary, Third Division, Fourth Army Corps.
13. George T. Bartlett ...	U. S. A.	June 3	June 18	June 27	June 21	Assistant to purchasing commissary, San Francisco, Cal.
14. John D. Black	N. Dak.	do ..	June 17	June 23	June 24	Staff of Maj. Gen. N. A. Miles.
15. Robert H. Fitzhugh ...	Pa.	do ..	June 11	June 14	June 11	Assistant to chief commissary, Department of the Pacific.
16. Wm. M. Grinnell	N. Y.	do ..	June 15	June 16	June 17	Commissary, Second Division, First Army Corps.
17. Walter K. Wright ...	U. S. A.	June 7	June 18	June 29	June 28	Commissary, First Division, Second Army Corps.

Chief commissaries of subsistence—Continued.

WITH THE RANK OF MAJOR—Continued.

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
18. Geo. W. H. Stouch ...	U. S. A. ...	1898. June 9	1898. June 16	1891. June 17	1898. do ...	Chief commissary, Department of the Colorado, and purchasing commissary, Denver, Colo.
19. Herbert Katz	N. J.	June 13	June 28	June 30	July 9	Commissary, Third Division, Third Army Corps.
20. Jos. H. Heatwole....	Ind	do ...	June 27	July	July 2	Commissary, First Division, Third Army Corps.
21. Harry E. Wilkins....	U. S. A. ...	June 20	Aug. 22	.....	.....	

Commissaries of subsistence.

WITH RANK OF MAJOR.

[Under act approved July 7, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
1. Rufus M. Townsend...	N. Y.	1898. July 16	1898. July 28	1898. Aug. 10	1898. Aug. 27	Commissary, Second Division, Fourth Army Corps.
2. Frederick A. Smith ...	U. S. A.	do ...	Aug. 17	Aug. 20	Aug. 17	Chief commissary, Department of the Lakes.
3. Solomon F. Thorn.....	Cal	do ...	Aug. 5	Aug. 22	Aug. 13	Chief Commissary, Department of California.
4. Morris C. Foote	U. S. A.	do ...	July 22	Aug. 23	.....	
5. Henry Page	Utah	do ...	July 26	Aug. 12	Sept. 7	Commissary, Third Brigade, Second Division, Fifth Army Corps.
6. Daniel Hogan	Ill	do ...	Aug. 8	Aug. 9	Aug. 11	Assistant to purchasing commissary, Porto Rico.
7. George W. Ruthers ...	U. S. A.	do ...	July 31	Aug. 3	Aug. 5	Purchasing and depot commissary, Jacksonville, Fla.
8. William Williams....	N. Y.	do ...	July 20	July 27	Aug. 1	Commissary and acting assistant quartermaster, steamer Chester.

WITH RANK OF CAPTAIN.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
1. Elmore F. Taggart...	U. S. A.	1898. May 12	1898.	18 8.	1898. May 16	Commissary, First Brigade, First Division, Fifth Army Corps.
2. Alexander R. Piper ..	U. S. A.	do ...	June 2	June 13	July 11	Commissary, Second Brigade, First Division, First Army Corps.
3. Harold E. Cloke.....	U. S. A.	do ...	June 8	June 4	June 20	Commissary, First Brigade, First Division, First Army Corps.
4. Parker W. West	U. S. A.	do ...	Declined	.....	.....	
5. R. W. Thompson, jr. .	Ind	do ...	June 20	July 1	July 6	Assistant to chief commissary, Fourth Army Corps.
6. Daniel Van Voorhis..	Ohio	do ...	May 27	June 8	May 27	Commissary, First Brigade, Independent Division, Department of the Pacific.

Commissaries of subsistence—Continued.

WITH RANK OF CAPTAIN—Continued.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
7. Samuel B. Bootes	Ohio	1898. May 12	1898. May 31	1898. May 31	1898. June 8	Commissary, Independent Division, Department of the Pacific.
8. Lee Linn	Ind	do	June 1	June 8	June 15	Miscellaneous duties, Camp Merritt, Cal.
9. William A. Tucker	Tenn	do	May 26	May 26	May 31	Staff of Brigadier-General Anderson, Department of the Pacific.
10. Theodore B. Hacker	Tenn	do	May 24	May 24	May 26	Commissary, Second Division, Seventh Army Corps.
11. Frank H. Lord	N. Y	do	May 25	June 7	June 9	Commissary, First Division, Fifth Army Corps.
12. John H. Earle	S. C	do	Declined			
13. Jay Cooke, 3d	Pa	do	May 27	May 27	May 28	Staff of Major-General Wade, Chickamauga, Ga.
14. Thos. C. Catchings, jr.	Miss	do	May 31	May 31	June 4	Commissary, First Brigade, Second Division, Seventh Army Corps.
15. Eben B. Fenton	Mich	do	June 3	June 8	June 15	Commissary, First Brigade, Third Division, Second Army Corps.
16. Joseph A. Cox	Pa	do	Declined			
17. Martin M. Marshall	Iowa	do	June 2	June 6	June 14	Commissary, Third Brigade, Second Division, Third Army Corps.
18. Robert H. Beckham	Tex	do	May 30	May 31	June 4	Commissary, First Brigade, Cavalry Division, Fifth Army Corps.
19. Stewart M. Brice	N. Y	May 17	May 27	May 28	May 27	Staff of Major-General Shafter, Fifth Army Corps.
20. Oliver Perry Smith	Pa	do	June 9	June 13	June 15	Commissary, Third Brigade, Second Division, Seventh Army Corps.
21. Edward R. Hutchins	Iowa	do	May 31	June 11	June 10	Commissary, Third Brigade, First Division, Second Army Corps.
22. Salmon F. Dutton	Vt	do	June 2	June 4	June 8	Commissary, Third Brigade, First Division, Third Army Corps.
23. Orson Pettijohn	Ill	do	June 4	June 12	June 15	Commissary, Third Brigade, Second Division, Second Army Corps.
24. John Landstreet, jr	Tenn	do	May 28	May 28	June 2	Commissary, Second Division, Second Army Corps.
25. Peter C. Deming	N. Y	do	June 6	June 10	June 15	Commissary, Second Brigade, First Division, Second Army Corps.
26. Edward Glines	Mass	do	June 10	July 4	July 13	Commissary, Light Artillery Brigade, Third Army Corps.
27. Morton J. Henry	Pa	do	May 28	May 28	June 2	Commissary, Second Brigade, Cavalry Division, Fifth Army Corps.
28. Philip M. Lydig	N. Y	do	May 27	do	do	Commissary, Light Artillery Brigade, First Army Corps.

PAPERS ACCOMPANYING THE

Commissaries of subsistence—Continued.

WITH RANK OF CAPTAIN—Continued.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
29. James F. Jenkins	Wyo.....	1898. May 17	1898. June 11	1898. June 16	1898. June 20	Commissary, First Brigade, Third Division, Fourth Army Corps.
30. John Carmichael.....	Va.....	do ...	July 12	July 18	July 18	Depot commissary, Lakeland, Fla.
31. Miller R. Downing...	Ohio.....	do ...	June 2	June 13	June 13	Commissary, First Brigade, Second Division, Third Army Corps.
32. Wilson I. Davenney...	Ill.....	do ...	June 4	June 10	June 19	Commissary, First Brigade, Third Division, First Army Corps.
33. Seth M. Milliken.....	Me.....	do ...	June 1	June 7	June 10	Commissary, Third Brigade, Independent Division, Department of the Pacific.
34. Frederick W. Hyde...	N. Y.....	May 19	May 30	June 2	June 6	Commissary, First Brigade, First Division, Second Army Corps.
35. James E. Calhoun....	do	do ...	May 31	June 5	June 14	Staff of Major-General Butler, Second Army Corps.
36. Wm. H. Anderson....	Ohio.....	do ...	June 3	June 3	June 3	Staff of Brigadier-General Greene, Department of the Pacific.
37. George B. McCallum..	Tenn.....	do ...	June 21	July 2	July 7	Commissary, Second Brigade, Second Division, Fourth Army Corps.
38. Ralph P. Howell.....	Iowa.....	May 20	May 31	June 6	June 10	Commissary, Second Brigade, Second Division, Seventh Army Corps.
39. Don A. Dodge.....	Minn.....	do ...	June 11	June 18	June 20	Commissary, Second Brigade, First Division, Third Army Corps.
40. Warner Harrison....	Ohio.....	May 23	June 10	June 15	June 16	Commissary, Second Brigade, Second Division, Third Army Corps.
41. Charles Ellet Cabell..	Va.....	do ...	June 6	June 7	June 10	Commissary, Third Brigade, Second Division, First Army Corps.
42. Joseph N. DuBarry, jr.	Pa.....	do ...	June 7	June 10	June 14	Commissary, Second Brigade, Second Division, Second Army Corps.
43. Winslow S. Lincoln...	Mass.....	do ...	June 11	June 16	June 20	Commissary, Third Division, Fourth Army Corps.
44. William Larrabee, jr.	Iowa.....	June 3	June 21	July 12	July 16	Commissary, First Brigade, First Division, Third Army Corps.
45. Joseph B. Handy.....	Del.....	do ...	June 14	June 16	June 17	Commissary, Second Brigade, Independent Division, Department of the Pacific.
46. Warren C. Fairbanks..	Ind.....	do ...	June 10	June 11	June 14	Commissary, Second Brigade, Second Division, First Army Corps.
47. John P. Teagarden...	Pa.....	June 4	June 20	July 4	July 14	Commissary, Third Brigade, Second Division, Fourth Army Corps.
48. John W. Barker.....	U. S. A ..	June 8	Declined	.....	.....	
49. C. Dupont Condert...	N. Y.....	do ...	June 20	June 21	June 27	Assistant to chief commissary, Department of the Pacific.

Commissaries of subsistence—Continued.

WITH RANK OF CAPTAIN—Continued.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
50. George W. Nellis.....	N. Y.....	1898. June 8	1898. June 20	1898. June 23	1898. July 1	Commissary, First Brigade, Second Division, Second Army Corps.
51. Edwin W. Hurlbut.....	Colo.....	do.....	do.....	June 30	July 2	Commissary, Provisional Cavalry Brigade, Fourth Army Corps.
52. Charles E. Golden.....	Wyo.....	do.....	June 21	June 28	do.....	Commissary, Second Brigade, Third Division, First Army Corps.
53. James Colfax Grant.....	Minn.....	do.....	June 20	June 27	do.....	Commissary, Third Brigade, Third Division, First Army Corps.
54. Carl K. Mower.....	Ohio.....	do.....	June 18	June 20	July 6	Commissary, Third Brigade, First Division, First Army Corps.
55. Frederic H. Pomroy.....	N. Y.....	do.....	June 20	June 28	July 2	Commissary, First Brigade, Second Division, Fourth Army Corps.
56. Thomas H. Simms.....	Ark.....	June 9	June 23	July 1	July 5	Assistant to purchasing commissary, Cincinnati, Ohio.
57. James E. B. Stuart.....	Va.....	do.....	June 20	June 21	June 23	Commissary, First Brigade, First Division, Seventh Army Corps.
58. Carroll Mercer.....	Md.....	do.....	June 21	June 27	June 27	Commissary, First Brigade, Second Division, Fourth Army Corps.
59. Albert S. Brookes.....	U. S. A. ..	June 13	June 23	July 7	July 15	Chief commissary, Department of the Columbia, and purchasing commissary, Vancouver Barracks, Wash.
60. William W. Statham.....	Va.....	do.....	June 27	June 29	June 29	Commissary with Second Army Corps.
61. Joseph F. Evans.....	Cal.....	June 16	June 25	June 27	June 30	Collection of duties, Philippine Islands.
62. Robert D. Winthrop.....	N. Y.....	June 20	July 1	July 5	July 5	Commissary, Third Brigade, Second Division, Fourth Army Corps.
63. William H. Lyons.....	Ky.....	do.....	June 28	June 29	June 29	Commissary, First Brigade, First Division, Second Army Corps.
64. John M. Tobin.....	Mass.....	do.....	June 30	July 1	July 2	Commissary, First Brigade, Second Division, First Army Corps.
65. Nathaniel T. Messer.....	Cal.....	do.....	July 7	Aug. 8	July 25	Commissary and acting assistant quartermaster, steamer Scandia, California.
66. Charles W. Neal.....	Iowa.....	June 20	July 4	July 10	July 12	Commissary, Second Brigade, Second Division, Fourth Army Corps.
67. William F. Dunn.....	Wyo.....	June 23	July 15	July 28	July 28	Assistant to depot commissary, Fernandina, Fla.
68. William J. Ryan.....	Ohio.....	July 25	July 27	July 30	Aug. 24	Commissary with Seventh Army Corps.
69. Harlow L. Street.....	.....	Aug. 3	Aug. 6	Aug. 16	Aug. 30	Commissary, Third Brigade, First Division, Second Army Corps.
70. Allerton S. Cushman.....	.....	Aug. 11	.....	.....	.....	

PAPERS ACCOMPANYING THE

Commissaries of subsistence—Continued

WITH RANK OF CAPTAIN—Continued.

[Under act approved April 22, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	First assignment.	
					Date.	Duty.
71. Patrick H. McCaull..	Va.....	1898. Aug. 11	1898. Aug. 18	1898. Aug. 23	1898. Aug. 31	Assistant to purchasing commissary Dunn Loring, Va.
72. Henry E. Tiepke.....	R. I.....	do	do	do	do	do
73. William M. Loveland..	do	do	Aug. 18	Aug. 23	Sept. 13	Assistant to purchasing commissary, Huntsville, Ala.

WITH RANK OF CAPTAIN.

[Under act approved July 7, 1898.]

Name.	Appointed from.	Date of commission.	Date of acceptance.	Date of filing official bond.	Date.	Duty.
1. John B. Clarke	Ill	1898. July 16	1898. July 25	1898. July 29	1898. Aug. 24	Commissary with Seventh Army Corps.
2. James A. Logan, jr. .	Pa	do	do	Aug. 2	Aug. 13	Assistant to chief commissary, Chickamauga, Ga.
3. James A. Bailey, jr. .	Mass	do	Declined	do	do	do
4. Isaac D'Isay.....	Mo	do	July 26	Aug. 1	Aug. 24	Chief quartermaster, Third Division, Seventh Army Corps.
5. James C. Baldrige..	do	do	July 20	July 29	July 30	Commissary, First Brigade, Second Division, Seventh Army Corps.
6. William B. Cowin ...	Nebr	do	July 26	July 28	Aug. 24	Commissary with Seventh Army Corps.
7. Abraham Benedict...	N. Y.....	do	July 23	Aug. 10	Aug. 1	Assistant to purchasing commissary, Dunn Loring, Va.
8. Charles Weiser	N. Y.....	do	July 26	July 29	Aug. 6	Commissary and acting assistant quartermaster, hospital steamer Missouri.
9. Thomas F. Ryan.....	do	do	July 23	July 26	Aug. 8	Assistant to purchasing commissary, Montauk Point, N. Y.
10. William B. Hale	Tenn	do	July 25	Aug. 9	Aug. 24	Commissary with Seventh Army Corps.
11. James C. Read	Pa	do	July 19	July 20	July 20	Commissary and acting assistant quartermaster, steamer Massachusetts.
12. Samuel N. Bridgman..	do	July 21	Sept. 1	Sept. 17	Sept. 27	Commissary with Second Army Corps.

The seven chief commissaries of subsistence of volunteers with the rank of lieutenant-colonel, who had been appointed from the Regular Army, were assigned to duty on the staffs of the commanding generals of the seven army corps established by General Orders, No. 46, Headquarters of the Army, May 16, 1898. Those chief commissaries of volunteers having the rank of major were as a rule assigned to the staffs of division commanders, and the commissaries having the rank of captain to the staffs of brigade commanders.

PURCHASE AND SHIPMENT OF SUBSISTENCE SUPPLIES.

By the end of April, 1898, orders had been issued sending officers of the Regular Army to the places of rendezvous designated throughout

the country for mustering into the service of the United States the volunteer troops called out by the President's proclamation of April 23. Instructions were given to all commissary officers engaged in the subsistence of these volunteers, and supplies of necessary blank forms for facilitating the transaction of commissary business were sent them in profusion from the Commissary-General's Office.

Meanwhile depots of subsistence supplies had been established by the Commissary-General at the principal points of concentration of troops, and officers of skill and experience of the regular establishment had been assigned to duty at them, in order that the chief commissaries of corps and divisions and the commissaries of brigades might not be distracted with the business of purchasing and forwarding supplies to their commands, but would be able to give their undivided attention, under the orders of their commanding officers, to the duty of drawing and issuing rations to the enlisted men in the field who had been committed to their care.

Instructions had been given by the Commissary-General of Subsistence to the purchasing and depot commissaries in the cities of New York, Baltimore, Chicago, St. Louis, Kansas City, New Orleans, and San Francisco, who were all officers of the regular establishment and some of them of long service and great experience, to purchase and ship to the depots which had been located at the several points of concentration subsistence supplies in such quantities as to meet all current demands for the subsistence of troops and for keeping on hand at those places a surplus of at least sixty days' provisions for the entire commands there assembled.

The depot commissaries at the places of concentration were also authorized to call on the Commissary-General of Subsistence for all the supplies that they might consider to be needed in carrying out this plan. These instructions have applied to all places where large bodies of troops have been assembled, and under them there has been no difficulty in procuring and shipping all subsistence supplies needed. As a measure of precaution, the commissaries on duty in charge of depots near large bodies of troops in the eastern part of the United States have been required to make weekly reports to the Commissary-General of Subsistence of the number of complete rations on hand, in order that there might be no delay or failure of replenishment by the Subsistence Department.

THE SANTIAGO CAMPAIGN.

A very serious freight blockade at and in the neighborhood of Tampa in May and June, 1898, was caused by the celerity with which the troops and their supplies were concentrated at that place in preparation for the invasion of the Island of Cuba. This blockade was a matter of grave concern to the Subsistence Department, and it was only after the most peremptory orders of the Commissary-General of Subsistence to unload the cars and to hire warehouses, if necessary, that the officers of the department on the spot were enabled, with unflagging zeal and untiring energy, to so far extricate the department as to permit the taking by the Fifth Army Corps, when it sailed on June 14, a supply of rations sufficient to last the command of 16,000 enlisted men for four months, and the sending on June 26, 27, and 28 of further supplies.

The following is a list of the subsistence stores taken on transports

with the Fifth Army Corps when it sailed on June 14, consigned to the officer acting as depot commissary in Cuba, viz:

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 10,000 men.
<i>Meat components.</i>			
Bacon.....pounds..	922,888	2,011,701	126.7
Beef:			
Fresh roast, 2-pound cans.....cans..	289,544		
Corned, 2-pound cans.....do.....	3,500		
<i>Bread components.</i>			
Flour.....pounds..	963,536	1,940,882	121.3
Hard bread.....do.....	1,093,295		
Baking powder.....do.....	47,760		
<i>Vegetable components.</i>			
Beans.....pounds..	232,408	1,946,186	121.6
Beans, baked, 3-pound cans.....cans..	480		
Rice.....pounds..	39,360		
<i>Fresh vegetable components.</i>			
Potatoes.....pounds..	127,783	1,198,055	74.9
Onions.....do.....	4,200		
Tomatoes, 3-pound cans.....cans..	457,010		
<i>Coffee and sugar components.</i>			
Coffee, green.....pounds..	45,060	2,307,475	144.2
Coffee, roasted.....do.....	148,550		
Sugar.....do.....	206,308		
<i>Seasoning components.</i>			
Vinegar.....gallons..	17,898	1,789,800	111.8
Salt.....pounds..	91,826	2,295,650	143.5
Pepper.....do.....	6,900	2,760,000	172.5
<i>Soap and candle components.</i>			
Soap.....pounds..	83,400	2,085,000	130.3
Candles.....do.....	83,785	2,252,333	140.8
<i>Stores for sale to officers and enlisted men.</i>			
Plug tobacco.....pounds..	18,000	.....	.....
Durham smoking tobacco.....do.....	1,000	.....	.....
Seal of North Carolina smoking tobacco.....do.....	1,000	.....	.....

Reenforcements for the Fifth Army Corps, to the extent of 6,400 enlisted men, sailed for Santiago June 22. On June 26, 27, and 28 the following subsistence stores were shipped from Tampa to the officer acting as depot commissary in Cuba, viz:

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 8,400 men.
<i>Meat components.</i>			
Bacon.....pounds..	113,308	504,266	78.8
Beef:			
Fresh roast, 2-pound cans.....cans..	128,306		
Fresh roast, 6-pound cans.....do.....	1,380		
<i>Bread components.</i>			
Flour.....pounds..	271,100	490,608	76.7
Hard bread.....do.....	249,625		
Baking powder.....do.....	9,924		
<i>Vegetable components.</i>			
Beans.....pounds..	45,000	500,000	78.1
Rice.....do.....	20,000		
<i>Fresh vegetable components.</i>			
Potatoes.....pounds..	278,521	645,858	100.9
Onions.....do.....	115,418		
Tomatoes, 3-pound cans.....cans..	89,968		
Tomatoes, gallon cans.....do.....	7,332		

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 16,000 men.
<i>Coffee and sugar components.</i>			
Coffee, green.....pounds..	21, 750	498, 125	77.8
Coffee, roasted.....do....	22, 450		
Sugar.....do.....	75, 100		
<i>Seasoning components.</i>			
Vinegar.....gallons..	5, 312	513, 200	80.2
Salt.....pounds..	20, 000	500, 000	78.1
Pepper.....do.....	1, 250	500, 000	78.1
<i>Soap and candle components.</i>			
Soap.....pounds..	20, 040	501, 000	78.3
Candles.....do....	7, 520	501, 333	78.3

There were shipped with the above stores to the chief commissary of the expedition in Cuba the following subsistence stores for sales to officers and enlisted men, viz:

Articles.	Weights or meas- ures.	Articles.	Weights or meas- ures.
Appriots:		Jam, blackberry, 1-pound cans...cans..	528
3-pound cans.....cans..	6,684	Tobacco:	
1-gallon cans.....do....	61	Plug, H. S.....pounds..	17,952
Crackers, soda.....pounds..	1,800	Plug, Climax.....do....	3,080
Peaches:		Smoking, Durham.....do....	500
3-pound cans.....cans..	17,054	Smoking, Seal of North Carolina, pounds.....	500
1-gallon cans.....do....	101	Soap, toilet, oatmeal.....cakes..	852
Pears:		Shoestrings, porpoise.....pairs..	1,600
3-pound cans.....do....	6,663	Towels, bath, linen.....number..	42
1-gallon cans.....do....	9		

There had been shipped from Mobile, Ala., with the Twentieth Infantry on June 4, 1898, the following subsistence stores, which, being left on shipboard at Daiquiri by the regiment, were partly unloaded at Siboney, and the remainder conveyed by the transport to Santiago after the capitulation:

Articles.	Weights or measures.	Equivalent in rations.
<i>Meat components.</i>		
Bacon	pounds..	20, 758
Beef, fresh, roast.....	do.....	2, 111
<i>Bread components.</i>		
Flour	pounds..	23, 809
Hard bread	do.....	6, 661
Baking powder.....	do.....	848
<i>Fresh vegetable components.</i>		
Tomatoes, 3-pound cans	cans..	14, 642
<i>Coffee and sugar components.</i>		
Coffee, green	pounds..	3, 012
Sugar	do.....	4, 274
<i>Seasoning components.</i>		
Vinegar	gallons..	369
Salt.....	pounds..	1, 448
Pepper	do.....	93
<i>Soap and candle components.</i>		
Soap	pounds..	1, 500
Candles.....	do.....	560

During the month of June, 1898, the following subsistence stores were sent from New York and Chicago to the commissary of the provisional brigade, Second Army Corps, at Santiago, Cuba:

Articles.	Weights or measures.	Equivalent in rations.
<i>Meat components.</i>		
Bacon	pounds..	127, 501
Beef:		
Fresh roast, 2-pound cans	do.	135, 144
Fresh roast, 6-pound cans	do.	
Corned, 4-pound cans	do.	
Corned, 14-pound cans	do.	
Salmon, 1-pound cans	do.	19, 968
		63, 000
<i>Bread components.</i>		
Flour	pounds..	141, 900
Hard bread	do.	172, 550
Baking powder	do.	3, 276
<i>Vegetable components.</i>		
Beans	pounds..	40, 500
Beans, baked, 3-pound cans	do.	20, 304
<i>Fresh vegetable components.</i>		
Potatoes	pounds..	152, 460
Onions	do.	37, 163
Tomatoes, 3-pound cans and 1-gallon cans	do.	233, 145
<i>Coffee and sugar components.</i>		
Coffee:		
Green	pounds..	27, 143
Roasted	do.	8, 400
Tea:		
Black, English breakfast	do.	36
Black, Oolong	do.	40
Sugar	do.	40, 500
<i>Seasoning components.</i>		
Vinegar	gallons..	2, 700
Salt, issue	pounds..	10, 752
Pepper, black	do.	675
<i>Soap and candle components.</i>		
Soap, salt water	pounds..	10, 800
Candles	do.	4, 800
Candles, lantern	do.	3, 200
<i>Articles for sales to officers and enlisted men.</i>		
Bacon, breakfast, 1-pound cans	cans..	3, 756
Coffee:		
Extra Java	pounds..	781
Extra Mocha	do.	451
Corn, green, 2-pound cans	cans..	1, 872
Crackers, soda	pounds..	154
Ham, deviled, 1-pound cans	cans..	720
Milk, 1-pound cans	do.	1, 536
Pease, American, 2-pound cans	do.	384
Prunes	pounds..	375
Sardines, 1/2 boxes	boxes..	800
Soup:		
Beef, 1-quart cans	quarts..	384
Chicken, 1-quart cans	do.	384
Clam chowder, 1-quart cans	do.	144
Mock turtle, 1-quart cans	do.	144
Oxtail, 1-quart cans	do.	144
Sugar:		
Cutloaf	pounds..	824
Granulated	do.	682
Tongue, beef, 2-pound cans	cans..	180
Flavoring extracts:		
Lemon, 2-ounce bottles	bottles..	72
Vanilla, 2-ounce bottles	do.	72
Lime juice, quart bottles	do.	372
Mustard:		
Ground	pounds..	86
French	bottles..	86
Pickles:		
Chow chow, pint jars	jars..	72
Gherkins, pint jars	do.	72
Mixed, pint jars	do.	72

Articles.	Weights or measures.	Equivalent in rations.
<i>Articles for sale to officers and enlisted men—Continued.</i>		
Pipes:		
Corncob	150	.....
Brier, No. 4	75	.....
Tobacco:		
Plug	3,080	.....
Smoking, Durham	750	.....
Soap, toilet:		
Oatmeal	900	.....
Glycerine	1,080	.....
Cuticura	720	.....
Yankee shaving	300	.....
C. B.	504	.....
Basins, hand, tin	3,000	.....
Blacking, shoe, Mason's	360	.....
Brooms, whilk, large	349	.....
Brushes:		
Blacking, No. 1	285	.....
Hair, small	360	.....
Can openers	872	.....
Combs, dressing, rubber	372	.....
Matches, safety	9,360	.....
Paper, toilet	3,800	.....
Shoestrings, porpoise	2,304	.....
Towels:		
Linen, damask	144	.....
Huck, No. 1	1,500	.....
Bath, cotton, No. 1	372	.....
Bath, cotton, No. 2	264	.....

During the month of July, 1898, the following subsistence stores were sent to the chief commissary of the expedition in Cuba, viz:

FROM NEW YORK, N. Y.

Articles.	Weights or measures.	Equivalent in rations.
<i>Bread components.</i>		
Corn meal, yellow	412,500	330,000
<i>Coffee and sugar components.</i>		
Coffee, green	90,000	960,000
Sugar	150,000	1,000,000
<i>Seasoning components.</i>		
Salt	60,000	1,500,000
Pepper	3,750	1,500,000
<i>Soap and candle components.</i>		
Soap	60,000	1,500,000

FROM TAMPA, FLA.

<i>Meat components.</i>			
Bacon.....	pounds..	667,216	} 968,841
Fresh beef, prepared.....	do.....	5,000	
Corned beef, 2-pound cans.....	cans.....	25,000	
Codfish.....	pounds..	24,984	
<i>Bread components.</i>			
Flour.....	pounds..	385,400	} 772,908
Hard bread.....	do.....	306,325	
Corn meal.....	do.....	177,500	
Yeast.....	do.....	500	
<i>Fresh vegetable components.</i>			
Potatoes.....	pounds..	475,421	475,421
Onions.....	do.....	63,063	63,063
Beans, baked, 3-pound cans.....	cans.....	37,536	250,240

Articles.	Weights or measures.	Equivalent in rations.
<i>Coffee and sugar components.</i>		
Coffee, roasted.....pounds..	38, 030	475, 375
Tea.....do.....	804	40, 200
Sugar.....do.....	37, 400	249, 333
<i>Soap and candle components.</i>		
Soap.....pounds..	15, 000	375, 000
Matches (safety).....boxes..	77, 760	
<i>Stores for sales to officers and enlisted men.</i>		
Bacon, breakfast.....pounds..	2, 000	
Corn, green, 2-pound cans.....cans..	24, 000	
Crackers:		
Soda.....pounds..	1, 820	
Ginger.....do.....	480	
Ham:		
Deviled, 1-pound cans.....cans..	4, 752	
Sugar-cured.....pounds..	3, 000	
Milk, 1-pound cans.....cans..	30, 000	
Peaches, 3-pound cans.....do.....	12, 000	
Lime juice.....bottles..	4, 500	
Mustard.....do.....	416	
Pickles, mixed.....jars..	3, 912	
Paper, toilet.....packages..	12, 500	
Pears, 3-pound cans.....cans..	11, 999	
Pease, green, canned, 1-pound cans.....do.....	24, 000	
Prunes.....pounds..	5, 000	
Sardines:		
1-pound boxes.....boxes..	2, 000	
1-pound boxes.....do.....	2, 000	
Soups, quart cans.....cans..	16, 000	
Flavoring extracts.....bottles..	1, 008	
Ginger, ground.....pounds..	40	
Sauce, table, Worcestershire.....bottles..	504	
Cigars.....	50, 000	
Tobacco:		
Plug.....pounds..	27, 000	
Smoking.....do.....	45, 000	

Under contract entered into July 1, 1898, between the Commissary-General of Subsistence and Swift & Co., of Chicago, Ill., a cargo of refrigerated beef reached Santiago on July 21, 1898, the day after the port was opened for navigation, and was most acceptable to the troops and hospitals there. Supplies of this beef have since been furnished in plentiful quantities to meet the needs at that place.

On September 27, 1898, the purchasing and depot commissary who had been ordered to Santiago on August 1, 1898, reported the following ration articles on hand in his depot, viz:

Articles.	Weight or measures.	Equivalent in rations.
<i>Meat components.</i>		
Bacon.....		800, 000
Beef, roast, canned.....		800, 000
<i>Bread components.</i>		
Flour.....		800, 000
Hard bread.....		700, 000
Corn meal.....		1, 100, 000
Yeast.....		1, 000, 000
<i>Vegetable components.</i>		
Beans.....		1, 000, 000
Rice.....		700, 000
<i>Fresh vegetable component.</i>		
Tomatoes.....		800, 000
<i>Coffee and sugar components.</i>		
Coffee.....		2, 000, 000
Coffee, roasted.....		1, 800, 000
Sugar.....		2, 000, 000

Articles.	Weights or measures.	Equivalent in rations.
<i>Seasoning components.</i>		
Vinegar.....		2,000,000
Salt.....		1,800,000
Pepper.....		2,600,000
<i>Soap and candle components.</i>		
Soap.....		3,000,000
Candles.....		2,500,000

No great quantities of subsistence stores of the above kinds had been shipped to Cuba after the withdrawal of the Fifth Army Corps from that island. The garrison at Santiago at present consists of seven regiments.

It will thus be seen that all due diligence was used by the Commissary-General of Subsistence in placing subsistence stores within reach of the troops operating against Santiago. Upon landing in Cuba these stores of the expedition were subject to the orders of the general commanding, who was in paramount control of the military operations in that quarter. The relations of the commanding general of the forces and of the staff officers on duty under him to the supplies placed at their disposal are sufficiently defined by laws, regulations, and orders. The degree of diligence and efficiency with which all the subsistence officers of the staff performed their duties in supplying the troops in the immediate theater of operations was primarily within the observation and control of the general commanding. On the eve of setting out for Santiago the commanding general Fifth Army Corps issued the following order:

GENERAL ORDERS, }
No. 7.

HEADQUARTERS FIFTH ARMY CORPS,
Tampa, Fla., June 2, 1898.

The following is published for the information and guidance of this command:

Troops will be rationed every ten days.

To accomplish this, regiments will consolidate company ration returns, brigade commissaries will in turn consolidate ration returns of the regiments of their brigades, and having obtained the approval of the chief commissary of the division to which they belong, will draw from the depot commissary in bulk, and issue to the different companies of their brigades.

Separate regiments, companies, detachments, field hospitals, or other organizations not brigaded will draw direct from the depot commissary in the way indicated for brigades.

The consolidated ration return of the brigade commissary, approved by the chief commissary, upon which issues are made, will be a proper voucher for the depot commissary.

Brigade commissaries will also provide themselves with small quantities of stores for sales, but officers and men should, as much as possible, provide for their wants from the depot.

To facilitate this work a field tool chest will be issued to each brigade, also paulins by the depot, and commissary sergeants assigned as far as practicable.

The corps stationed at Jacksonville and thereabouts will draw from the depot commissary at Jacksonville, and the corps stationed here and hereabouts from the depot commissary here.

By command of Major-General Shafter:

E. J. MCCLERNAND,
Assistant Adjutant-General.

If, with abundance of provisions ashore and afloat at the base of supplies in Cuba, the enlisted men were at any time hungry, not the Commissary-General of Subsistence, nor the entire personnel of the Subsistence Department, was at fault. A glimpse of the difficulties encountered on landing in Cuba is given by the chief commissary of the

expedition in an official letter to the Commissary-General of Subsistence, dated at Siboney, Cuba, July 7, 1898, as follows:

You are already acquainted with the loading at Tampa that I hoped to straighten out when we unloaded somewhere on the island, but the opportunity has not come, although we landed on the 22d of June. At Daiquiri first, then here, the troops were run ashore without rations, and I was directed to open depots, 200,000 rations at each, and feed soldiers, civilian employees, Cubans, etc. To do this was simply impossible, but not so to try, and we pegged away night and day meeting demands.

At Daiquiri there is a pier to which our transports could not go, but I took a lighter, transferred from transport thereto, ran in, and unloaded. Succeeded in obtaining not more than about 60,000 rations on shore and these were issued rapidly, but we kept right along. Siboney, being about 7 miles nearer to Santiago, with a bad road, became the base, although furnishing no advantage beyond propinquity, as it was in the open, no landing, everything depending on the calm of the surf, which was uncertain. Here I would proceed as before, running in the lighter as far as I could, then transferring stores into a small boat, about 10 tons, borrowed from the Navy, and pull ashore by hand. To supply an army in this way was severe, but when new regiments came, landing without a ration and increasing my work, the job looked insurmountable. I worked day and night, men getting sick, stevedores striking, new hands insufficient and inefficient, supplemented by rough sea, until I got down to 1,000 rations ashore. I got through, but the Lord knows how. Now to business.

The commanding general directed that hard bread, roasted coffee, sugar, and meat be the only components furnished. I added soap and some tomatoes. This of course leaves us with a lot of spare stuff—as vinegar, candles, pepper, flour—thus making confusion more confused. Unloading and straightening out is out of the question without Santiago, and I have an idea that even if we had it I wouldn't have time to do so. Hence, to meet such conditions, quite probable to me, I have to request that you cause to be sent the stores mentioned in telegram of yesterday and in the manner, too, as when our stores are with troops they too often help themselves, and here at least go ashore, leaving their camp and garrison, their personal and official baggage, and whatever rations, forage, etc., on hand scattered all over the ship, so that one has to work a day or two to find what he wants, and this I have no time to do. We should have transports consigned to us for duty, then we could handle our stores in a businesslike way.

Your Department has been praised plentifully. I am well.

Please send me without delay a few more commissary sergeants. This, however, I'll telegraph to-day.

It is evident from the foregoing statements that the supplies of subsistence stores shipped for the use of the Army in Cuba have been at all times in excess of immediate needs. Besides being available for our own troops, they afforded relief to the Cuban army and to the destitute population which abandoned the city of Santiago when preparations for its destruction had been made. The official returns from Cuba, showing in detail the issues made to these several classes of persons and others contemplated by law, have not yet been received, and there is not in this office any information throwing light on the subject of the provisioning of the transports which brought the Army back to Montauk Point further than that there was an abundance of subsistence stores in Santiago and vicinity.

DIET FOR THE SICK.

On May 17, 1898, on the request of the Surgeon-General and the recommendation of the Commissary-General of Subsistence, the Secretary of War granted 60 cents per day per man for subsistence of the sick in hospital at Key West, Fla., payable from the appropriation for subsistence of the Army.

On June 16, 1898, on the recommendation of the Surgeon-General and Commissary-General of Subsistence, the Secretary of War approved the allowance of 60 cents per man per day to patients carried upon the hospital train, payable from the appropriation for subsistence of the Army.

August 2, 1898, on the application of the chief surgeon, Seventh

Army Corps, for the allowance of two rations each to soldiers at recuperation camp at Pablo Beach, Fla., the Commissary-General recommended, and the Secretary of War approved on August 4, an allowance at the rate of 60 cents per man per day to the patients in the hospital camp, payable from the appropriation for subsistence of the Army.

There was doubtless little in the nature of special food for the diet of the sick to be obtained in the midst of or in the neighborhood of military operations in Cuba, and little opportunity occurred, in the short time between the landing of the troops in that island and the embarkation for home, for the accumulation there of hospital funds for the purchase by the Medical Department of special supplies needed for the sick, even had there been a market accessible.

On a telegram to the Adjutant-General from the commanding general of the Fifth Army Corps, dated at Santiago, August 2, 1898, stating that there were no hospital funds at Santiago, and requesting that \$2,000 be supplied by the Medical Department to the medical officer in charge there for the purchase of delicacies for the sick (in that instance chickens, which were there from the North), the Commissary-General of Subsistence recommended to the Secretary of War that the rations of the sick in hospital at Santiago be commuted at 75 cents per day. This recommendation was approved by the Secretary of War for the troops serving in Cuba. The Secretary had generously manifested a willingness to pay the amount called for from his own private means. A telegram was at once sent by the Commissary-General of Subsistence to the chief commissary at Santiago informing him that the Secretary of War had approved the Commissary-General's recommendation that rations of the sick in hospital at Santiago be commuted at 75 cents per day, stating that it would enable the hospitals to buy all the chickens or other things necessary, and directing him to show the telegram immediately to the commanding general.

Notwithstanding this telegram, intended as a reply to the telegram of the commanding general, medical officers who returned on the transports loaded with sick troops had evidently to rely almost exclusively, if not entirely, on the ration of the soldier for the diet of the sick during the passage.

On August 6 the Surgeon-General requested that the rations of sick and wounded men on hospital transports be commuted at 60 cents per day, to enable the medical officers to procure light diet for their patients, and this request was favorably recommended by the Commissary-General of Subsistence to the Secretary of War on August 7, payable from the appropriation for the subsistence of the Army.

On August 9, 1898, the following letter was addressed to the Adjutant-General:

WAR DEPARTMENT,
OFFICE COMMISSARY-GENERAL OF SUBSISTENCE.
August 9, 1898.

SIR: I inclose herewith draft of a general order regulating and systematizing the matter of subsisting the sick and wounded enlisted men in certain hospitals, hospital trains, and hospital transports, which I request may be approved by the honorable the Secretary of War and promulgated for the information and guidance of all concerned.

Very respectfully,

CHAS. P. EAGAN,
Commissary-General of Subsistence.

The ADJUTANT-GENERAL OF THE ARMY.

The draft which was inclosed was published as General Order No. 116, as follows:

GENERAL ORDERS, }
No. 116.

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, August 10, 1898.

The following is published to the Army for the information and guidance of all concerned:

Medical officers in charge of general hospitals, hospital trains, hospital transports, and the hospital at the camp at Pablo Beach, Fla., and at the hospital at the camp at Montauk Point, New York, will be allowed to expend from the appropriation "Subsistence of the Army," for the diet of the enlisted men undergoing medical treatment under their charge, at the rate of not exceeding 60 cents per man per day for the period each is undergoing treatment. The allowance so made will constitute a special fund in the hands of the medical officer in charge, from which will be purchased the entire diet of the enlisted men while undergoing medical treatment. These purchases will be restricted to articles of food, solid and liquid, the quantities and varieties of which will be determined by the medical officer in charge.

Chief commissaries of departments will transfer to medical officers in charge such subsistence funds as may be estimated for by the latter for carrying out the objects of this order.

There will be rendered monthly to the Commissary-General of Subsistence by the medical officers concerned regular accounts current, supported by vouchers, showing the application of these funds, and regular returns of subsistence stores, accounting for the articles of food purchased and issued. There will be submitted with each monthly return a tabular statement showing the number of patients present during the month as shown by the hospital records, and the money value of the articles issued to and consumed by them. The statement will be so arranged as to show the actual cost of subsistence per man per day for the month.

Transfers of subsistence funds from one hospital, train, or transport to another without authority of the commissary-general of subsistence, and the purchase from subsistence funds of articles other than food intended for the diet of the sick, are prohibited.

This order will go into effect at once, and all surplus funds in the hands of medical officers in charge, arising from the commutation of rations heretofore allowed to enlisted men undergoing treatment under their charge, will be taken up on their accounts current for the month of August, and all articles purchased from such commutation remaining on hand unconsumed on receipt hereof will be taken up on their returns of subsistence stores for that month.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General*.

This order was afterwards extended to include all field and post hospitals, and ample provision was made for furloughing convalescents and paying them commutation of rations while traveling to and from their homes.

MONTAUK.

The army in Cuba had, by the end of July, 1898, become so afflicted with malarial fevers that the Secretary of War ordered all the troops that took part in the Santiago campaign to be returned to the United States and taken to Montauk Point, Long Island. On August 3, the cavalry detachment and recruits at Tampa, Fla., of all the regiments then in Cuba, were first ordered to Montauk Point. On August 4, the Commissary-General of Subsistence directed a subsistence officer of large experience, on duty in New York City, to proceed in person to Montauk Point and make complete report as to the probable facilities that would be afforded there for a subsistence depot for supplying the Fifth Army Corps; as to the best manner of arranging for the daily supply of fresh beef, fresh bread and vegetables, and whether they could best be obtained in New York. He was directed to report what, if any, steps had been taken to furnish a subsistence warehouse, and where, in his judgment, the subsistence warehouse or warehouses should be located; all possible information being desired as quickly as it could be gotten, as the first detachment of the Fifth Army C

ady left Cuba.

This officer left for Montauk at 3.30 o'clock that afternoon, and reported, on his return on the morning of August 5, that the storehouses should be at the station, $1\frac{1}{2}$ miles from the camp ground; that the railroad was rushing side tracks; that he had not seen the Quartermaster's representative, but had telegraphed the president of the railroad that the Subsistence Department required three storehouses 30 by 100 feet at once; that he had advertised for beef, bread daily, and vegetables every five days, for delivery at any place or places within 3 miles of Montauk as desired by the depot commissary; that he would ship 20,000 rations August 8 and 50,000 on August 11, sending beef, bread, and vegetables when needed; that he did not expect storehouses to be completed for at least a week, probably longer, but would forward stores so there would be an abundance without congestion. He subsequently reported (same day) that the contracts for building the subsistence storehouses had been let that day, to be completed in eight days.

On August 3 an officer of the Subsistence Department at Jacksonville, Fla., was requested to be ordered to duty at Montauk Point, and the order was telegraphed him August 7, 1898.

A subsistence officer then in Washington, and a brigade commissary also there, who had been wounded at Santiago and who was willing to surrender the unexpired portion of his sick leave, were sent, the former reporting at Montauk August 8, and the latter August 10. The same officer from New York, who had visited the camp August 4, was also directed to proceed there for consultation and to place the officer who arrived there August 8 in charge and instruct him to do whatever might be necessary. The commanding officer of the camp was informed by telegraph of these dispositions on August 8, and was requested to have the Quartermaster's Department turn over a tent for each company, regiment, brigade, division, or corps for sheltering subsistence stores. The officer from Jacksonville left that city on August 9.

On August 10, the officer who visited Montauk August 8, reported that he had seen the commanding general of the camp, and, he thought, arranged matters satisfactorily; that 20,000 rations had arrived the morning of the 10th; that storehouses would be ready on August 13; that the commanding general had given orders to have tents furnished for shelter of subsistence supplies of companies, regiments, and brigades; and that stores for sales would be shipped early the next week, or as soon as preparations had been made for handling them. Subsequently, on the same day, he telegraphed that the carpenters on the subsistence storehouse were taken off to build the hospital buildings, and that he had telegraphed the subsistence officer in temporary charge to "keep stores in car and use hay platform to issue from; next to hospital, subsistence storehouse is most important, and no other buildings should have precedence over it," and to consult with the general commanding.

On August 12 orders were given from the Adjutant-General's Office to stop everything south of Washington that was en route to Montauk Point; and, in answer to an inquiry from the Commissary-General on that day, the subsistence officer at New York who had visited the camp reported that an abundance of rations, including fresh meat, bread, and vegetables, had been received thus far and would continue unless contractors broke down, which was not anticipated; that carpenters were rushing the work on building, and that the commanding general at the camp had said that the commissary building should have precedence over all but the hospital. The officer from Jacksonville assumed duty as depot commissary at the camp on August 12, and reported 50,000 rations in cars on the track. On August 13 he inquired if there was an order extant authorizing additional expenditure of 50 cents per man

per day for sick in camp, and was referred same day to General Order No. 116, dated August 10, 1898, which provided that 60 cents per man per day might be expended, and which directed the surgeon in charge to make application to the chief commissary for funds for the purpose.

The first shipload of troops of the Fifth Army Corps arrived off Camp Wikoff, Montauk Point, from Santiago, on Saturday night, August 13, and were landed on August 14. Four other transports arrived August 14, and the landing of their troops was begun on August 15. These transports were thereafter followed at short intervals by other arrivals.

Maj. Gen. Joseph Wheeler landed from Santiago on August 15 at the camp, and proceeded to Washington, returning to Camp Wikoff and assuming command on August 17.

At the request of the Commissary-General of Subsistence of August 18, the officer of the Subsistence Department who had been chief commissary of the Fifth Corps in Cuba, proceeded to Camp Wikoff on the morning of August 19, and reported from there, August 20, that Generals Young and Wheeler insisted on his remaining a week; that he informed them of the Commissary-General's wishes, and that General Young telegraphed to the Commissary-General, and General Wheeler to the Adjutant-General, on the subject. General Young did telegraph August 19, to the Commissary General, stating that the presence of the officer for a week was essential. General Wheeler telegraphed same day to the Adjutant-General specially requesting that the officer be ordered that day to be chief commissary there, if not permanently, until organization was perfected. Request for an order of assignment was made August 20, to be transmitted by telegraph, and General Young was so informed. Subsequently, on the same day at 6.05 p. m., the depot commissary at the camp telegraphed the Commissary-General that General Wheeler had requested that he—the depot commissary—be authorized to furnish what supplies he should designate, the list of articles to be named by the chief surgeon, as the men of his command needed other articles of food than those in the ration, being in a weakened condition and needing nourishing food immediately.

On August 21, the Commissary-General, knowing that he had called the depot commissary's attention to the provision that had been made by General Order No. 116, August 10, for allowing medical officers to expend 60 cents per man per day from subsistence funds for the sick in hospital, and not knowing any reason for General Wheeler's assuming the duties of the Commissary-General in the matter of ordering disbursements of subsistence funds to be made for any purpose, telegraphed General Wheeler as follows:

Your request to Major Duval that supplies be designated by chief surgeon, other than articles of food now authorized, be purchased by him, received. I have to state that the law controls and regulates every purchase of this Department. To meet precisely such a case as you designate, General Order No. 116, dated August 10, was issued; and I am surprised that your surgeons have not availed themselves of the benefit of that order; wherein you will see that 60 cents per day is allowed for each sick man, to be expended for such articles as the surgeons in charge may designate, they to purchase the articles. Please have them act on this order at once and you will find it fully covers your views. A copy of the order will be mailed you to-day, to be sure that you have it.

On the same day the Commissary-General telegraphed the depot commissary as follows:

Your telegram covering General Wheeler's request for other articles than those of the ration has been answered by me to-day, inviting attention to General Order No. 116, which fully covers the necessities of the case. If you have not received General Order No. 116 let me know, and it will be mailed you immediately.

On the same day the depot commissary re-
which the Adjutant-General had sent to Ge

a telegram
and a copy

of which had been sent by General Wheeler to him, and stating that on the strength of that telegram he had acted, and had ordered a large supply of stores from the purchasing commissary at New York. On the same day (August 21) the Adjutant-General furnished the Commissary-General of Subsistence with copies of the correspondence between General Wheeler and himself, which was that referred to by the depot commissary. On the same day (August 21) the Adjutant-General telegraphed the commanding general of the camp at Montauk as follows:

Having reference to telegraphic correspondence of yesterday as to the purchase of articles outside of the service ration for the troops at Montauk Point, the Secretary of War desires me to invite your attention to a telegram sent from the Commissary-General to General Wheeler. It is thought the plan outlined by the Commissary-General will meet the purposes you have in view better than any other way. Your views, however, are invited.

On August 22 the depot commissary at the camp was directed by the Commissary-General to make requisitions on the Commissary-General of Subsistence, and not direct on the purchasing commissary at New York, for such stores as he needed, except in case of rations. On the same day the following instructions from the Commissary-General were sent him by telegraph:

You are assigned to duty as purchasing and depot commissary at Montauk Point, and as such are under the orders of the Secretary of War and myself. You will not call upon anyone for any unauthorized articles of subsistence or for sales without first referring to this office. The order sent General Wheeler by the Adjutant-General has been revoked. Ascertain if the surgeons can not act upon General Order No. 116 without delay. Its enforcement and proper execution are of greater value than the illegal purchase of stores not authorized to be purchased by the Subsistence Department by law. Communicate with the surgeons and inform me promptly of their action, to the end that the real comfort of the soldiers and the supply of such articles as the surgeon in charge may deem necessary shall be furnished at once. It is presumed the medical purveyor in New York can expeditiously and promptly furnish the articles required for by the surgeons, the Subsistence Department furnishing the money, as contemplated by the general order herein referred to. Communicate with General Wheeler, whose wishes I wish to carry out to the utmost of my ability without violating law. Answer and report action.

He reported the same day as follows:

Have conferred with General Wheeler and with chief surgeon. Chief surgeon stated that articles are not necessary, upon which General Wheeler directed me to have request on Woodruff canceled, which I did.

Accordingly, the Commissary-General of Subsistence telegraphed General Wheeler on same day as follows:

Weston has been assigned as chief commissary to the troops of your command; order mailed 20th instant. Will you please direct the surgeons to call for the money immediately, to procure such special stores as your surgeons may want. I am heartily in accord with you to provide the sick with such stores as are necessary to their condition. The surgeons should be made to perform their duty to the sick in this respect. The money is ready, and they should be forced to do their duty under General Order No. 116.

On August 24 the Secretary of War, who was himself at Montauk on that day, telegraphed the Adjutant-General as follows:

I have seen General Eagan's telegram to Duval, commissary, calling attention to General Order No. 116. Notwithstanding, you will instruct him to fill Duval's requisition of August 21 on Woodruff, and any similar requisitions General Wheeler authorizes. It is absolutely essential.

Copy of the above telegram of the Secretary of War was furnished the Commissary-General of Subsistence by the Adjutant-General on August 25, on receipt of which a telegram was sent by the Commissary-General of Subsistence to the chief commissary of the camp, the portion relating to the purchase of food for the sick being as follows:

Meantime, the most important thing to do, now that you are there, is the question of providing for the troops. General Order 116 covers any and every soldier that the

surgeons consider should receive other food than the prescribed army ration. The failure of the surgeons to avail themselves of this order up to the present time is a matter of serious importance, and if continued I shall deem it my duty to appeal to the law and all that that implies, and hold each and everyone responsible for any shortcomings due to the sick being neglected by reason of the nonobservance of that order. That the order has not been carried out by the general commanding and the surgeons is entirely beyond my comprehension. The failure to carry out the order is, to me, neither more nor less than a disobedience of orders, and I shall most certainly hold each and every person concerned responsible for them. The condition stated by you, "that there are not any real men here," makes it all the more serious that the surgeons have not enforced that order, have not called for the money which is at their disposal—60 cents a day for feeding each and everyone of them with the class of food that they should have. You state that at present no men stood more in need of delicacies than the men there. Then why not take the 60 cents and feed them as they should be fed? It looks to me like criminal neglect, and somebody, and everybody if necessary, will be held to an accountability for not using the money provided. Depend upon it, I shall hold every man accountable for a failure to feed the men with the money which this Department has provided. Nothing on earth shall prevent my insisting that justice shall be done in this respect. I have ordered Woodruff to supply the stores called for by General Wheeler and that may hereafter be called for. These orders call for the expenditure of subsistence money not authorized by law. This condition is forced upon the Secretary of War and upon myself, and I most emphatically state that it is because the provisions of General Order 116 have not been carried out, and whoever is or may be responsible for this thing shall be held by me to the utmost accountability, and the people at large will hold them responsible for their failure to take the money lying there under their hands for the care of the sick, which they seem not to have done so far. You are on the ground; you are the senior officer after myself, and I require from you at once an official report upon which official action can be taken by the President, by the Secretary of War, and by the country at large, as to why this money provided for the sick has not been used and utilized.

The first requisition on the chief commissary of the Department of the East from surgeons at Montauk for funds, under General Order No. 116, was dated August 25, received August 26, and check drawn same day.

Under the authority of the Secretary of War of August 24 there have been purchased from subsistence funds by officers of the Subsistence Department and issued gratuitously to the troops at Montauk up to September 30, in addition to the ration and to the 60 cents per day provided by General Order 116, the following quantities of articles:

Ice	pounds..	1, 085, 200
Milk	gallons..	54, 860
Hallbut	pounds..	3, 000
Lima beans	do.....	47, 047
Tea	do.....	250
Apples (canned)	3-pound cans..	6, 020
Do	gallon cans..	1, 774
Apples (evaporated)	pounds..	21, 550
Apricots (evaporated)	do.....	14, 500
Butter	do.....	34, 799
Corn (canned)	cans.....	13, 889
Cocoa	pounds..	1, 080
Soda crackers	do.....	9, 960
Ham (sugar-cured)	do.....	19, 927
Evaporated cream	cans.....	31, 140
Oatmeal	do.....	31, 985
Peaches (evaporated)	do.....	18, 025
Peaches (canned)	do.....	14, 973
Pears (canned)	do.....	14, 889
Pease (canned)	do.....	16, 128
Prunes	pounds..	9, 925
Beef soup	cans.....	7, 500
Chicken soup	do.....	11, 490
Pickles	gallons..	7, 100
Oranges	crates..	300
Lemons	do.....	150
Eggs	dozens..	53, 070

The following correspondence is self-explanatory:

HEADQUARTERS UNITED STATES FORCES,
Camp Wikoff, August 28, 1898.

DEAR GENERAL: I have seen a reported interview with myself in the " " " [newspaper] " " " of yesterday's date, which does you an injustice.

I took the greatest pains to explain to the reporter that the delay in filling orders for supplies was due to the fact that you thought General Orders No. 116 would cover the whole ground, you at that time not knowing that there were a good many sick in camp who could not be provided for under that order.

I make this explanation to you because I desire you to know that the interview as reported is not correct.

Very respectfully,

JOS. WHEELER,
Major-General, U. S. V., Commanding.

Gen. CHARLES P. EAGAN,
Commissary-General, Washington, D. C.

WAR DEPARTMENT,
OFFICE COMMISSARY-GENERAL OF SUBSISTENCE,
Washington, August 30, 1898.

DEAR GENERAL: I have both the honor and pleasure of acknowledging receipt of your letter of August 28, and thank you for the same.

I was animated throughout by the strongest desire to strengthen your hands in caring for the sick, and in my opinion the General Order 116 would cover those not able to eat the rations, but who might thereby be considered sick and come under the provisions of that order. I was solely animated with the wish to provide them the delicacies contemplated without obliging anyone to expend money not authorized by law. I have never understood that there was any money to meet purchases not contemplated by law. Had I understood this none of this misunderstanding could have arisen; none can regret it more than myself. For, from the first to the present and the future, my sole desire is to aid you and every other commanding officer in caring for the troops to the utmost.

Very respectfully, yours,

CHAS. P. EAGAN,
Commissary-General.

Maj. Gen. JOSEPH WHEELER,
Commanding U. S. Forces, Camp Wikoff, Montauk Point, Long Island, N. Y

PORTO RICO.

The strength of the army dispatched to Porto Rico in July and August, 1898, was 641 officers and 16,332 enlisted men. The following quantities of subsistence stores were shipped from New York and Chicago to that island in July and August, 1898:

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 16,332 men.
<i>Meat components.</i>			
Bacon.....pounds..	447, 178	1, 617, 780	99+
Beef:			
Fresh roast, 1-pound cans.....cans..	984, 084		
Corned, 2-pound cans.....do.....	34, 884		
Salmon, 1-pound cans.....do.....	140, 016		
Brawn:			
1-pound cans.....do.....	336		
2-pound cans.....do.....	228		
6-pound cans.....do.....	60		
14-pound cans.....do.....	6		
<i>Bread components.</i>			
Flour.....pounds..	787, 528	2, 201, 945	134. 9
Hard bread.....do.....	1, 501, 920		
Yeast.....do.....	4, 580		
<i>Vegetable components.</i>			
Beans.....pounds..	106, 341	1, 885, 680	115. 4
Beans, baked, 3-pound cans.....cans..	71, 496		
Rice.....pounds..	70, 000		
<i>Fresh vegetable components.</i>			
Tomatoes, 3-pound cans.....cans..	100, 008	225, 018	13. 7

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 16,332 men.
<i>Coffee and sugar components.</i>			
Coffee:			
Green.....	pounds..	100,053	} 2,907,917
Roasted.....	do.....	152,591	
Sugar.....	do.....	380,717	2,404,780
<i>Seasoning components.</i>			
Vinegar.....	gallons..	9,965	998,500
Salt.....	pounds..	90,120	2,253,000
Pepper.....	do.....	10,750	4,300,000
<i>Soap and candle components.</i>			
Soap.....	pounds..	58,040	1,401,200
Candles.....	do.....	21,005	1,400,333
<i>Stores for sales to officers and enlisted men.</i>			
Apples, 3-pound cans.....	cans.....	2,400	
Coffee, extra Java and Mocha.....	pounds..	15,449	
Corn, green, 2-pound cans.....	cans.....	24,000	
Crackers, soda.....	pounds..	10,080	
Gelatin, 2-ounce packages.....	packages..	1,008	
Ham:			
Deviled, 1-pound cans.....	cans.....	20,000	
Sugar-cured.....	pounds..	1,000	
Macaroni.....	do.....	1,000	
Milk, 1-pound cans.....	cans.....	30,048	
Peaches, 3-pound cans.....	do.....	4,803	
Pears, 2-pound cans.....	do.....	4,752	
Peas, American.....	do.....	23,400	
Prunes.....	pounds..	6,000	
Sardines:			
1-pound boxes.....	boxes.....	6,000	
1-pound boxes.....	do.....	3,000	
Soups, assorted, quart cans.....	cans.....	19,984	
Starch.....	pounds..	3,000	
Sugar:			
Cut loaf.....	do.....	2,042	
Granulated.....	do.....	10,257	
Tongue, 2-pound cans.....	do.....	5,004	
Flavoring extracts.....	bottles..	1,800	
Ginger, ground.....	pounds..	103	
Jams and jellies, 2-pound cans.....	cans.....	1,816	
Lime juice.....	bottles..	5,004	
Mustard:			
Ground.....	pounds..	200	
French.....	bottles..	1,200	
Olive oil, quart bottles.....	do.....	4,800	
Pickles, assorted, jars, pints.....	jars.....	10,800	
Sauce, Worcestershire.....	bottles..	1,008	
Cigars, plantation.....		60,000	
Pipes:			
Brier wood.....		10,000	
Corncob.....		20,000	
Tobacco:			
Plug.....	pounds..	20,020	
Smoking.....		80,000	
Soap, toilet, assorted.....	do.....	50,160	
Buttons, trousers.....	dozen.....	144	
Needlebooks, with needles.....	books.....	720	
Pins.....	papers..	720	
Thread, white and black.....	spools..	1,440	
Envelopes, note.....		14,200	
Paper, note.....	quires..	2,500	
Penicils, indelible.....		15,000	
Penholders.....		144	
Pens.....	gross.....	12	
Hand basins.....		15,000	
Shoe blacking.....	boxes.....	792	
Brooms, whilk.....		5,040	
Brushes:			
Blacking.....		1,008	
Hair.....		5,000	
Can openers.....		14,804	
Combs, pocket.....		5,040	
Handkerchiefs, linen.....		1,728	
Shoe strings.....		20,016	
Towels:			
Linen.....		6,159	
Huckaback.....		20,808	
Bath.....		7,341	
Towelling.....	yards.....	6,000	
Matches, safety.....	boxes.....	20,880	
Paper, toilet.....		28,800	

In addition to the foregoing, contract was made with Swift & Co., of Chicago, Ill., for furnishing refrigerated beef for the entire command in the island.

HAWAIIAN ISLANDS.

The command sent to the Hawaiian Islands in August, 1898, consisted of 58 officers and 1,605 enlisted men. The following quantities of subsistence stores were shipped to the purchasing and depot commissary at Honolulu in August, 1898:

Articles.	Weights or meas- ures.	Equivalent in rations.	Number of days' supply for 1,605 men.	
<i>Meat components.</i>				
Pork.....	pounds..	11,600	33,828	21
Bacon.....	do..	3,998		
Beef:				
Corned, 2-pound cans.....	cans..	600		
Fresh roasted, 1-pound cans.....	do..	11,520		
Salmon, 1-pound cans.....	do..	15,792		
Mackerel, pickled.....	kits..	5	80	
Codfish, dried.....	pounds..	80		
<i>Bread components.</i>				
Flour.....	pounds..	151,300	149,128	92.9
Hard bread.....	do..	14,400		
Corn meal.....	do..	800		
Baking powder.....	do..	5,328		
<i>Vegetable components.</i>				
Beans.....	pounds..	17,300	175,028	109
1-pound cans.....	cans..	98		
3-pound cans.....	do..	1,200		
Rice.....	pounds..	5,100		
Peas.....	do..	100		
<i>Fresh vegetable components.</i>				
Potatoes.....	pounds..	26,474	61,802	38.5
Onions.....	do..	10,848		
Tomatoes, 2½-pound cans.....	cans..	12,240		
<i>Coffee and sugar components.</i>				
Coffee:			210,560	131
Green.....	pounds..	10,808		
Roasted.....	do..	4,300	153,333	95.5
Sugar.....	do..	23,000		
Tea.....	do..	180	9,000	5.6
Sirup:				
Maple.....	gallons..	78	3,900	2.4
Cane.....	do..	24	1,200	.75
<i>Seasoning components.</i>				
Vinegar.....	gallons..	1,560	156,000	97.2
Salt.....	pounds..	6,198	154,950	96.5
Pepper.....	do..	425	170,000	106
<i>Soap and candle components.</i>				
Soap.....	pounds..	7,080	177,000	110
Candles.....	do..	3,520	117,333	73
Soap, salt water.....	do..	1,600	40,000	24.9
<i>Stores for sales to officers and enlisted men.</i>				
Apples:				
2½-pound cans.....	cans..	24		
Evaporated.....	pounds..	200		
Apricots, 2½-pound cans.....	cans..	480		
Bacon, breakfast.....	pounds..	774		
Butter.....	do..	216		
Cheese:				
American.....	do..	149		
Edam.....	do..	12		
Chocolate, plain and Vanilla.....	do..	174		
Coffee, extra Java and Mocha.....	do..	316		
Corn, green, 2-pound cans.....	cans..	720		
Crabs, pony cans.....	do..	96		

Articles.	Weights or meas- ures.	Equivalent in rations.	Number of days' supply for 1,005 men.
<i>Stores for sales to officers and enlisted men—Continued.</i>			
Crackers, assorted	pounds	1,270	
Gelatin, 2-ounce packages	packages	73	
Hominy, fine	pounds	80	
Ham:			
Deviled, $\frac{1}{2}$ -pound cans	cans	240	
Sugar cured	pounds	302	
Lard	do.	380	
Lobster, 1-pound cans	cans	144	
Macaroni	pounds	100	
Milk, 1-pound cans	cans	2,880	
Mushrooms, $\frac{1}{2}$ -pound cans	do.	200	
Oatmeal, rolled	pounds	400	
Oysters, 2-pound cans	cans	96	
Peaches:			
$\frac{1}{2}$ -pound cans	do.	1,200	
Evaporated	pounds	150	
Pears, $\frac{1}{2}$ -pound cans	cans	480	
Peas, green, $\frac{1}{2}$ -pound cans	do.	1,120	
Pigs' feet, 2-pound cans	do.	48	
Pineapples, 2-pound cans	do.	48	
Preserves, damson, 2-pound cans	do.	240	
Prunes	pounds	1,000	
Sardines, $\frac{1}{2}$ -pound boxes	boxes	1,800	
Shrimps	cans	96	
Soups, assorted	quarts	480	
Starch, corn	pounds	80	
Sugar, cut, granulated, and powdered	do.	3,590	
Tapioca	do.	40	
Tongue, 2-pound cans	cans	24	
Cinnamon and cloves, ground	pounds	24	
Flavoring extracts, 2-ounce bottles	bottles	288	
Ginger, ground	pounds	12	
Jam and jelly, 2-pound cans	cans	2,160	
Lime juice	bottles	300	
Mustard, ground and French	pounds	144	
Nutmeg	do.	5	
Olive oil, quart bottles	bottles	120	
Olives, quart bottles	do.	72	
Pepper, red	pounds	28	
Pickles, chowchow	jars	72	
Salt, table	packages	336	
Sauce:			
Cranberry	cans	120	
Worcestershire, half pints	bottles	144	
Cigars, assorted		8,000	
Pipes, briar wood		288	
Pipestems		144	
Tobacco:			
Plug	pounds	4,500	
Smoking	do.	510	
Toilet soap, assorted	cakes	1,500	
Sapolo soap	do.	360	
Ivory soap	do.	1,000	
Bluing powder	boxes	20	
Starob, laundry	pounds	240	
Borax	do.	144	
Electro-silicon, 8-ounce boxes	boxes	144	
Metal polish, 8-ounce tins	tins	144	
Tripoli flour, 4-ounce packages	packages	144	
Buttons:			
Snap	gross	4	
Trowsers	do.	100	
Needles	papers	120	
Needles, darning	dozen	250	
Pins	papers	120	
Thread, assorted	spools	1,080	
Envelopes, letter and note		11,000	
Ink, black, 3-ounce bottles	bottles	576	
Paper, letter and note	quires	5,000	
Pencils, lead		432	
Penholders		288	
Pens	gross	86	
Blackening brushes		192	
Hand basins		288	
Shoeblackening	boxes	288	
Brooms, whisk		144	
Brushes:			
Hair		108	
Nail		72	
Tooth		576	

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 15,605 men.
<i>Stores for sales to officers and enlisted men—Continued.</i>			
Buttons, collar	576	.....	.....
Can openers	144	.....	.....
Chamois skins	24	.....	.....
Clothes lines	feet 1,200	.....	.....
Clothes pins	1,400	.....	.....
French shoeblacking	boxes 144	.....	.....
Combs, assorted	312	.....	.....
Handkerchiefs, assorted	936	.....	.....
Indelible ink	bottles 144	.....	.....
Matches, safety	boxes 21,600	.....	.....
Toilet paper	packages 1,000	.....	.....
Razor strops	24	.....	.....
Shoe strings	pairs 1,728	.....	.....
Towels, assorted	1,944	.....	.....
Toweling	yards 200	.....	.....

In addition to the above, fresh beef was taken to last until the arrival of the command at the islands.

PHILIPPINE ISLANDS.

The strength of the army sent to the Philippine Islands in May, June, and July, 1898, was 641 officers and 15,056 enlisted men. The following quantities of subsistence stores were shipped to those islands from San Francisco, Cal., during the above period, being conveyed with the various expeditions which carried the men:

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 1,605 men.
<i>Meat components.</i>			
Pork.....	pounds..	106,600	} 2,531,456168.1
Bacon.....	do.....	406,557	
Salt beef.....	do.....	99,000	
Beef:			
Fresh.....	do.....	866,514	
Fresh roast.....	do.....	1,274,329	
Corned, 2-pound cans.....	cans.....	19,126	
Salmon, 1-pound cans.....	do.....	407,180	
Mackerel, pickled.....	pounds..	1,800	
Codfish, dried.....	do.....	2,460	
<i>Bread components.</i>			
Flour.....	pounds..	2,328,100	} 2,759,834183.3
Hard bread.....	do.....	689,052	
Corn meal.....	do.....	1,700	
Baking powder.....	do.....	78,156	
<i>Vegetable components.</i>			
Beans.....	pounds..	221,000	} 2,679,780178
Beans, baked, 8-pound cans.....	cans.....	15,192	
Rice.....	pounds..	104,500	
Pease.....	do.....	1,750	
<i>Fresh vegetable components.</i>			
Potatoes.....	pounds..	351,408	} 3,511,457238.2
Onions.....	do.....	74,090	
Potatoes, desiccated.....	do.....	190,440	
Onions, desiccated.....	do.....	46,080	
Tomatoes:			
2½-pound cans.....	cans.....	210,416	
8-pound cans.....	do.....	31,300	
Gallon cans.....	gallons..	2,400	

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 15,056 men.
<i>Coffee and sugar components.</i>			
Coffee:			
Green.....	pounds..	190,026	} 2,641,615
Roasted.....	do.....	59,306	
Sugar.....	do.....	398,000	2,620,000
Molasses.....	gallons..	214	10,700
Sirup.....	do.....	672	33,600
Tea.....	pounds..	1,560	78,000
<i>Seasoning components.</i>			
Vinegar.....	gallons..	26,799	2,579,900
Salt.....	pounds..	105,200	2,630,000
Pepper.....	do.....	6,720	2,690,000
<i>Soap and candle components.</i>			
Soap.....	pounds..	110,100	2,752,500
Candles.....	do.....	43,240	2,882,667
Soap, salt water.....	do.....	1,200	30,200
Lantern candles.....	do.....	2,120	
<i>Forage for 96 head of beef cattle on steamers.</i>			
Hay.....	pounds..	34,242	
Corn.....	do.....	1,100	
Middlings.....	do.....	5,228	
Carrots.....	do.....	8,658	
<i>Stores for sales to officers and enlisted men.</i>			
Apples:			
2½-pound cans.....	cans.....	912	
Evaporated.....	pounds..	5,020	
Apricots, 2½-pound cans.....	cans.....	10,776	
Bacon, breakfast.....	pounds..	10,815	
Butter.....	do.....	11,686	
Cheese.....	do.....	6,360	
Chocolate, plain and vanilla.....	do.....	4,128	
Coffee, extra (Java and Mocha).....	do.....	7,094	
Coffee, extra, roasted and ground.....	do.....	5,804	
Corn, green, 2-pound cans.....	cans.....	8,616	
Crabs, 2-pound cans.....	do.....	600	
Crackers, assorted.....	pounds..	50,182	
Family flour.....	do.....	57,700	
Gelatin, 2-ounce packages.....	packages..	1,716	
Ham:			
Deviled, ½-pound cans.....	cans.....	2,928	
Sugar-cured.....	pounds..	8,530	
Lard.....	do.....	12,540	
Lobsters, 1-pound cans.....	cans.....	1,176	
Hominy, fine.....	pounds..	4,850	
Macaroni.....	do.....	2,560	
Milk, 1-pound cans.....	cans.....	17,812	
Mushrooms, ½-pound cans.....	do.....	8,200	
Oatmeal, 2-pound cartons.....	cartons..	8,800	
Oysters, 2-pound cans.....	cans.....	1,800	
Peaches:			
2½-pound cans.....	do.....	21,154	
Evaporated packets.....	packets..	6,520	
Pears, 2½-pound cans.....	cans.....	6,596	
Pease:			
American, 2-pound cans.....	do.....	8,790	
French, ½-pound cans.....	do.....	1,600	
Pigs feet, 2-pound cans.....	do.....	508	
Pineapples, 2-pound cans.....	do.....	3,552	
Preserves, damson, 2-pound cans.....	do.....	5,472	
Prunes.....	do.....	12,270	
Sardines:			
½-pound boxes.....	boxes.....	10,300	
1-pound boxes.....	do.....	4,300	
Shrimps, cans.....	cans.....	1,008	
Soups, assorted, quart cans.....	do.....	9,957	
Sugar, white, cut, and powdered.....	pounds..	43,170	
Tapioca.....	do.....	680	
Tongue, 2-pound cans.....	cans.....	194	
Cinnamon, ground.....	pounds..	162	
Cloves, ground.....	do.....	162	
Ginger, ground.....	do.....	146	
Flavoring extracts.....	bottles..	3,784	
Jams and jellies, 2-pound cans.....	cans.....	19,848	
Lime juice.....	bottles..	7,920	

Articles.	Weights or measures.	Equivalent in rations.	Number of days' supply for 15,056 men.
<i>Stores for sales to officers and enlisted men—Continued.</i>			
Mustard, ground.....	pounds..	1,462	
Nutmegs.....	do.....	108	
Olive oil, quart bottles.....	bottles..	676	
Olives.....	gallons..	225	
Pepper, red.....	pounds..	156	
Pickles, assorted.....	jars.....	1,908	
Salt, table.....	pounds..	25,340	
Sauce:			
Cranberry.....	cans.....	5,836	
Worcestershire, bottles.....	bottles..	1,404	
Ginger ale.....	do.....	21,600	
Cigars, assorted brands.....	do.....	157,100	
Pipes, briarwood.....	do.....	1,924	
Pipestems.....	do.....	2,528	
Tobacco:			
Plug.....	pounds..	48,088	
Smoking.....	do.....	16,497	
Soap:			
Toilet, assorted.....	cakes.....	80,802	
Sapolio.....	do.....	8,092	
Laundry.....	do.....	12,600	
Bluing, powdered.....	boxes.....	2,776	
Starch.....	pounds..	2,240	
Borax, 1-pound papers.....	do.....	1,580	
Electro Sillion, 3-ounce boxes.....	boxes.....	5,048	
Metal polish, 3-ounce tins.....	tins.....	15,936	
Tripoli flour, 4-ounce packages.....	packages..	4,642	
Buttons:			
Trousers.....	dosen.....	717,232	
Collar.....	do.....	7,000	
Needles.....	papers.....	1,290	
Needles, darning.....	dosen.....	850	
Needlebooks with needles.....	books.....	400	
Pins.....	papers.....	1,116	
Thread, spools, assorted.....	spools.....	12,680	
Envelopes, assorted.....	do.....	156,000	
Ink, black.....	bottles.....	5,144	
Paper, letter and note.....	quires.....	45,800	
Pencils, lead.....	do.....	11,504	
Penholders.....	do.....	5,244	
Pens.....	gross.....	116	
Hand basins.....	do.....	2,121	
Blacking, shoe.....	boxes.....	6,164	
Brooms, whisk.....	do.....	5,186	
Brushes:			
Blacking.....	do.....	9,000	
Hair.....	do.....	1,836	
Nail.....	do.....	3,092	
Tooth.....	do.....	26,712	
Can openers.....	do.....	4,170	
Chamois skins.....	do.....	500	
Clothes line.....	feet.....	114,240	
Clothes pins.....	do.....	25,200	
Combs, assorted.....	do.....	7,761	
Handkerchiefs, assorted.....	do.....	6,086	
Ink, indelible.....	bottles.....	540	
Matches, safety.....	boxes.....	430,320	
Toilet paper.....	packages..	12,900	
Razor strops.....	do.....	318	
Shoestrings.....	pairs.....	45,360	
Towels, assorted.....	do.....	28,492	
Toweling.....	yards.....	9,795	
Pomade, Puts.....	boxes.....	250	
Garden seed, assorted.....	pounds..	579	

In addition to the foregoing food supplies a contract was made at an early date, through the assistance of the United States consul-general at Melbourne, Australia, for the furnishing of refrigerated beef and fresh vegetables to the command after arrival at Manila. En route the expedition was supplied with refrigerated beef and beef from cattle slaughtered and dressed on the voyage.

CHICKAMAUGA NATIONAL PARK.

On April 22, 1898, an officer of the regular Subsistence Department was ordered to proceed to Chickamauga National Park and report in person to the commanding general at that place for duty. Subsistence funds were immediately placed to his credit in New York. A depot was established at Chattanooga, and supplies ample for the subsistence of the troops arriving were ordered from distant purchasing and shipping commissaries, and arrangements made for furnishing fresh beef, fresh bread, and vegetables to the command.

On May 14 2,700,000 rations were ordered shipped to Chattanooga, it being the policy at that time to have at least three months' supply, exclusive of daily consumption, on hand at all times for the number of troops at the camp. This extra supply was intended for use in case of immediate forward movements.

A subdepot was established at Camp George H. Thomas, in the Chickamauga National Park, for convenience of making issues to the camp.

By the system of weekly reports to the Commissary-General of Subsistence of the number of complete field rations and of the number of complete travel rations on hand at the depot at Chattanooga and the subdepot at Camp George H. Thomas, the supplies of food at those points were kept up by regular shipments from distant purchasing commissaries until the final abandonment of the Chickamauga National Park as a camping ground.

CAMPS AT NEW ORLEANS, MOBILE, TAMPA, SAN FRANCISCO, MIAMI, JACKSONVILLE, FALLS CHURCH, MIDDLETOWN, HUNTSVILLE, ANNISTON, AND LEXINGTON.

The troops encamped at these places were supplied with subsistence stores in the same way that the troops at Chickamauga National Park were supplied. With the exception of San Francisco, the depot commissaries on duty at each of these camps were required to make periodical reports to the Commissary-General of Subsistence of the supplies of food on hand. In San Francisco the troops were supplied directly by the chief commissary of subsistence of the Department of California on duty in that city, he drawing his supplies from the depot commissary there.

COMMISSARY CHESTS.

As conveniences were needed in the field for weighing and measuring articles in making issues and sales, and for repairing, recoopering, and marking packages, etc., a commissary chest was devised and sent into the field at an early date, giving great satisfaction.

COFFEE ROASTERS.

To avoid all chances of sophistication of the materials for the making of coffee, it has been the practice of the Subsistence Department to purchase for the troops coffee in the green state, leaving the entire work of roasting and converting it into drinkable coffee to be performed by the troops themselves. By this system general uniformity of standard of quality of coffee for issue to troops can best be maintained, and, the roasting and cooking being left to the men, they are always assured of having pure coffee and made according to their taste. Finding that no facilities had been provided for roasting coffee in the

field, the Commissary-General of Subsistence, with the approval of the Secretary of War, ordered a supply of coffee roasters to be sent into the field as soon as the troops assembled, one to be issued to each company.

To meet the necessities of active campaigning, where roasting in the field was impracticable, roasted coffee was furnished in large quantities, as will be seen from the tables hereinabove given. Coffee mills were furnished by the Quartermaster's Department.

FIELD BAKE OVENS.

As the building by the troops of temporary ovens of brick or other materials for the supply of fresh bread in camps is not always successful, and the use of a specially devised portable field oven, capable of baking with certainty a given quantity of bread in a given length of time, promised advantages greatly outweighing those possessed by the field ovens constructed by the troops, the Secretary of War authorized the Commissary-General of Subsistence to procure and send into the field a supply of portable field bake ovens of approved design. The field bake ovens wherever used gave the most gratifying results. It was the duty of the Subsistence Department, prior to the issue of General Orders No. 40, Headquarters Army, August 29, 1894, to build, alter, and repair the bake ovens constructed in the bakehouses at the garrisoned posts and in the field, and to furnish the utensils for use with the same; also to purchase portable bake ovens for use of troops in the field and the utensils connected with the operation of the same. The duty was by that order transferred to the Quartermaster's Department. With the view of having the duty restored to the Subsistence Department, an item has been introduced in the annual estimate for the fiscal year 1900 looking to the performance of the duty hereafter by the Subsistence Department. The incorporation of the words of the item in the appropriation act will, by giving the money for the purpose into the control of the Subsistence Department, furnish the first step toward the restoration of the duty to that Department.

MISCELLANEOUS EXPENDITURES.

The accounts for the fiscal year 1898 thus far examined show the following miscellaneous expenditures, viz:

For liquid coffee there was expended \$71,138, an increase over previous year of \$66,852.36; for extra-duty service, \$17,442.20, a decrease of \$3,361.45; for advertising, \$2,527.67, a decrease of \$1,669.94; for meals for recruiting parties and recruits and troops moving, \$89,260.55, an increase of \$53,772.78, due to the movements of the entire Army, both regulars and volunteers. The large increase in the amount expended for liquid coffee was due to same cause, and the decrease in extra-duty expenditures to the abolishment of pay therefor during the war times by act of Congress approved April 26, 1898. The decrease in advertising was caused by the necessity for immediate purchases on account of the war with Spain.

LOSSES OF STORES AND PROPERTY.

The value of the stores lost by accident, by wastage in transportation, while in store, etc., during the year, as shown by returns so far examined, for which no one was held responsible, was \$7,624.73, being greater by \$4,866.57 than that of similar losses in the previous year,

and due, undoubtedly, to the larger quantities of supplies required and moved by reason of the largely increased army to be supplied.

Supplies lost during the year for which responsibility was fixed amounted to \$528.74, of which \$29.93 has been collected, leaving still to be collected \$498.81.

SALE OF CONDEMNED AND OBSOLETE STORES.

From the returns thus far examined, the sales in the fiscal year appear to have been as follows:

	Subsistence stores.		
	Condemned.	Obsolete.	Total.
Original cost.....	\$3,134.72	\$25.79	\$3,160.51
Amounts realized from sales.....	259.55	13.61	273.16
Loss.....	2,875.17	12.18	2,887.35

An increase from previous year in stores condemned of \$784.02, and a decrease in obsolete stores of \$674.57. From sales of condemned subsistence property there was realized the sum of \$94.45.

CREDIT SALES.

Sales to officers in the fiscal year 1898, as shown by the accounts thus far examined, reported as made on credit and not deducted on pay accounts, amount to \$1,232.47. The sales to enlisted men on credit amounted to \$2,712.72, and the collections therefrom during the year, by the Pay Department, on muster and pay rolls and final statements, on account of credit sales in the current year and previous fiscal years, amounted to \$2,532.81.

A sale on credit to the Medical Department was made in June, 1898, in the sum of \$791.64, for which reimbursement has not yet been received.

Issues to Indians.

To whom made.	Value of issues.
Apache Indian prisoners at Fort Sill, Okla. (army appropriation act of Mar. 2, 1897).....	\$10,647.95
Indian prisoners at Fort Grant, Ariz.....	39.55
Indians visiting military posts (Rev. Stat., 2110)	142.40
Total.....	10,829.90

Issues to Spanish prisoners of war were made in May and June, 1898, to the extent of 8,655 rations.

REGIMENTAL COMMISSARIES.

It is thought to be a defect of organization that a regimental commissary is not authorized by law, who should be specially charged with the receipt and distribution of the food supplies of the regiment.

COMMISSARY SERGEANTS.

The number of commissary sergeants in service at the beginning of the fiscal year was 90. During the year 30 were appointed, 1 died, 1

was discharged, and 10 were retired, leaving 108 in service at the end of the year. The number should be increased so as to furnish one for each regiment in service, and one for each garrisoned post.

SYSTEM OF KEEPING RECORDS.

In the business world, where business of any intricacy or magnitude is conducted on business principles, no one would think of dispensing with the daybook. The elementary treatises on bookkeeping teach that the keeping of books is necessary for the faithful and systematic record of business transactions, and that the daybook is the book of original entry, containing a consecutive history of the transactions in the *date and order of their occurrence*. As the records in this book are made when the transactions and all the circumstances connected with them are fresh in the mind, it is the only book allowed in court in cases of litigation. Its importance from this fact, and also on account of its being the basis of all the results shown by the other books or records, can not be overrated.

These considerations should be of controlling weight in a governmental office, where, for the orderly and systematic dispatch of its business, and for the purposes of a retrospect of any and all of its transactions, the consecutive history of the same should be displayed by the entries kept permanently, and where they can be visually seen in *chronological* order; where they can never be displaced; where they remain even though the papers they record may become lost, misplaced, or destroyed; where anyone else beside the actors may see visually in a connected form what has been going on. The present system, which prohibits the making of any book entries, except in regard to money accounts, and distributes the record of transactions in fragmentary shape day by day through the files, gives no history such as a daybook gives of transactions in the date and order of their occurrence.

The precipitation of actual war upon the entire War Department has put to the severest test the system of keeping records prescribed by War Department circular of May 15, 1894. The system was attempted in the Navy Department a few years ago and abandoned.

In this Bureau all possible effort was made after the war began to keep the papers on the "record card file," the "card index file," the "document file," and the "precedent file," and to cause all papers received and sent to pass in the regular prescribed order through the hands of the mail clerks, the briefing clerks, and the numbering clerks, and to have the index cards and the cross reference cards and the charge cards and the tally lists made and kept and filed in precise order.

The conducting the war by telegraph soon broke into the maintenance of this system, and before the first augmentation of the clerical force had occurred on May 12, under the national defense act, the system had yielded to the pressure of events, and on the orders of the officers on duty in the Bureau the records were thereafter largely kept by putting under rubber bands the original letters and telegrams received, and letterpress copies of replies, and placing them in assorted piles on tables and in drawers where they could be under the control of the officers immediately concerned, and the several piles placed in the custody of clerks who were to keep in memorandum form and in their heads for index purposes a complete knowledge of their individual contents, no book entries being allowed. The accidental absence of one of these clerks was a partial paralysis of business.

The keeping of records in this unsatisfactory way still continues. There being thus no chronological arrangement, such as would be given by book entries, an exhaustive connected view of any one subject embodied in correspondence could and can only be had by a painstaking examination of the original letters or telegrams and press copies of all the piles (in order that none might escape by reason of improper assortment), or, more recently, by implicit reliance on the "record card files" and the "document files," which are now being hurriedly made up by the clerks from these assorted piles and individual stray papers. The dispersed character of the record, the giving of the same file numbers to papers of widely different dates, and the misplacement of letters and replies in point of dates and subject-matter when assembled in special card files add to the confusion and make an investigation into a subject without the aid of the memories of the living clerks, who have a knowledge of the matters and of the specific cards involved and their location, a task of difficult accomplishment, and the result is never free of doubt as to possible omissions on account of the weakness of the system and the manner in which the system has had to be imperfectly maintained. I believe the experience of this Bureau is not unique in the above particulars.

CLERICAL FORCE, OFFICE COMMISSARY-GENERAL OF SUBSISTENCE.

The regular force of 32 clerks was increased by the addition, from time to time after May 12, of temporary clerks employed under the appropriation for national defense, act of March 9, 1898 (30 Stat. L., 274), the deficiency act of May 31, 1898 (30 Stat. L., 422), and the deficiency act of July 7, 1898 (30 Stat. L., 696). The net increase has been about 40 clerks, all of whom are paid on the temporary roll. While, by the act of July 7, 1898, these temporary employees may be appointed for "a term not exceeding one year," that same act made appropriation for their payment until December 31, 1898, only. This will require that Congress shall further legislate in respect to the clerical force of this Bureau before the expiration of this calendar year, and I take the opportunity thus afforded of urgently pressing upon the attention of superior authority the justness and reasonableness of a rearrangement of the salaries of the clerical force of this Bureau. With the permanent increase of the Regular Army and the continuance of the Volunteer Army in service, the clerical work in this Bureau is increased in volume and importance. The clerical force, in my opinion, should be graded in accordance with those equitable principles which are observable in the arrangement of salaries in other bureaus and departments of the Government. I have, therefore, in submitting the estimate for the clerical force for the period beginning January 1, 1899, and ending June 30, 1899, asked for a moderate increase of grades of the regular clerical force, and have estimated for these increased grades in the estimate for the fiscal year ending June 30, 1900. I hope the proposed rearrangement will meet the approval of the Secretary of War and be favorably acted upon by Congress. In connection with the subject of the clerical work of the Bureau, I beg to say that since April last it has been necessary to keep a part of the clerical force on duty beyond office hours. The extra work has been cheerfully performed, and it is thought that extra compensation should be paid for the extra work. It is hoped that the Secretary of War will give the matter his favorable consideration.

The work of examining accounts and returns for the fiscal year has been as follows:

	Accounts current.	Returns of subsistence stores.	Returns of subsistence property.	Total.
On hand June 30, 1897.....	4	40	1	45
Received during fiscal year, 1898.....	2, 267	1, 601	580	4, 448
Total.....	2, 271	1, 641	581	4, 493
Examined during the year.....	2, 242	1, 589	580	4, 411
On hand June 30, 1898.....	29	52	1	82

The examination of the accounts current required the verification of 35,231 vouchers; the returns of subsistence stores, 25,629 vouchers; and the returns of subsistence property, 1,447 vouchers.

In connection with the examinations, 2,888 postal cards were used, 2,319 letters and 2,146 indorsements written and recorded, and 108 papers copied.

Contracts for supplies, etc., to the number of 265 were received and acted on.

Certificates of services as acting commissary of subsistence were issued to the number of 299, and of nonindebtedness to the number of 112.

Number of claims on hand, received, and disposed of during the fiscal year ending June 30, 1898.

	Claims for commutation of rations—		Total.
	While held as prisoners of war in rebel States.	While on furlough, and miscellaneous claims.	
There were on hand June 30, 1897.....	27	21	48
Received during the fiscal year.....	345	725	1, 070
Total.....	372	746	1, 118
Disposed of during the year.....	340	389	729
On hand June 30, 1898.....	32	357	389

The number of letters and indorsements written during the year in connection with the above claims was 2,815.

DUTIES OF OFFICERS OF THE SUBSISTENCE DEPARTMENT.

The officers of the regular establishment have worked with unfailing zeal and unparalleled efficiency in carrying out the orders of the Commissary-General, extending their labors at times into the night and making no distinction as to office hours or Sundays. Some of them broke down and are now on sick leave because of their labors. Their work was so important that the Commissary-General was unable to spare anyone from his post of duty, and the Commissary-General has consequently been obliged to carry on the vast business of this Bureau of the War Department with but one officer as an office assistant, whereas preceding Commissary-Generals, during times of peace when

the Army of only 25,000 men was all located at well-regulated permanent posts, have generally had three office assistants, and never less than two. The work of the officers of the regular Subsistence Department has been the highest possible form of patriotism, and their quiet, honest, and successful meeting of every demand upon them entitles them to just appreciation.

The commissaries of subsistence of volunteers have, with few exceptions, been zealous, painstaking, and anxious to perform their duties, and have done marvelously well. One was wounded in action in Cuba, and others were close up to the firing line distributing as best they could subsistence supplies to the troops, and thereby incurring quite as much danger as any of them.

The list of volunteer commissaries incorporated in this report shows the dates of qualifying by each and the first duty to which assigned.

The list subjoined shows the regular officers of the Subsistence Department and their duties on October 1, 1898.

Respectfully submitted.

CHAS. P. EAGAN,
Commissary-General of Subsistence.

The SECRETARY OF WAR.

Roster of the Subsistence Department, United States Army, October 1, 1898.

Name and rank.	Duty and station.	Assigned to present station.
<i>Commissary-General of Subsistence.</i>		
BRIGADIER-GENERAL.		
Charles P. Eagan.....	Commissary General of Subsistence, Washington, D. C..	May 3, 1898
Colonels.		
John F. Weston (Brig. Gen. Vols.)	Purchasing commissary, New York, N. Y. (On leave of absence.)	Sept. 26, 1898
Charles A. Woodruff	Chief commissary, Department of the East, Governor's Island, New York.	May 27, 1898
Lieutenant-Colonels.		
John J. Clague	Chief commissary on the staff of Maj. Gen. Joseph C. Breckinridge, U. S. Vols., commanding Third Army Corps, at Camp Hamilton, Lexington, Ky.	Aug. 4, 1898
Henry G. Sharpe (Col., U. S. A.).	Chief commissary on the staff of Maj. Gen. John R. Brooke, U. S. A., commanding Department of Porto Rico, at Ponce, Porto Rico, and purchasing and depot commissary at that place.	July 18, 1898
Frank E. Nye	Purchasing and depot commissary, Huntsville, Ala.....	Aug. 26, 1898
Majors.		
William L. Alexander (Lieut. Col., U. S. A.).	Purchasing commissary, St. Louis, Mo.....	July 2, 1898
Henry B. Osgood (Lieut. Col., U. S. A.).	Purchasing and depot commissary, Santiago, Cuba	Aug. 1, 1898
Oskaloosa M. Smith (Lieut. Col., U. S. A.).	Purchasing commissary, Chicago, Ill	Oct. 31, 1898
Edward E. Dravo (Lieut. Col., Vols.; Col., U. S. A.).	Chief commissary, Department of the Gulf, and purchasing commissary, Atlanta, Ga.	Mar. 14, 1898
Abiel L. Smith (Lieut. Col., U. S. A.).	Purchasing and depot commissary, Havana, Cuba.....	Oct. 1, 1898
Tasker H. Bliss (Lieut. Col., Vols.).	Purchasing and depot commissary, Matanzas, Cuba.....	Do.
James N. Allison (Lieut. Col., Vols.).	Chief commissary on the staff of Maj. Gen. Wm. M. Graham, U. S. Vols., commanding Second Army Corps, Camp George G. Meade, Middletown, Pa.	May 24, 1898
William H. Baldwin (Lieut. Col., Vols.; Col. U. S. A.).	Purchasing commissary, San Francisco, Cal.....	Jan. 31, 1897

Roster of the Subsistence Department, United States Army, October 1, 1898—Cont'd.

Name and rank.	Duty and station.	Assigned to present station.
<i>Captains.</i>		
David L. Brainard (Lieut. Col., Vols.).	Chief commissary on the staff of Maj. Gen. Wealeay Merritt, U. S. A., commanding Eighth Army Corps, Manila, Philippine Islands.	May 17, 1898
George B. Davis (Col., U. S. A.).	Assistant to the Commissary-General of Subsistence, Washington, D. C.	Feb. 9, 1898
John H. Duval.....	On leave.....	Sept. 8, 1898
Barrington K. West (Maj., U. S. A.).	Purchasing commissary, New Orleans, La.....	Feb. 28, 1898
Albert D. Niskern (Maj., U. S. A.).	Commissary on U. S. transport Comal.....	Aug. 22, 1898
John Little (Maj., U. S. A.) ..	Purchasing and depot commissary, Dunn Loring, Va.....	June 14, 1898
R. L. Bullard.....	Not on duty. (Col., Third Ala. Vol. Inf.).....	
[Vacancy].....		

REPORT OF THE SURGEON-GENERAL.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,

Washington, D. C., November 10, 1898.

SIR: In submitting a report of my administration of the duties of this office during the past year, I have the honor first to invite attention to the following statement of financial transactions for the fiscal year ended June 30, 1898:

Medical and Hospital Department, 1898:

Appropriated by act approved March 2, 1897.....	\$135,200.00
Refunded during the year.....	768.07

Total to be accounted for	135,968.07
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Disbursed during the year:

Expenses of purveying depots.....	\$77.20
Medical supplies.....	70,693.06
Pay of employees.....	34,255.09
Expenses of recruiting.....	3,257.95
Medical attendance and medicines.....	14,415.27
Washing at post hospitals.....	1,296.91
Pay of nurses.....	1,037.26
Miscellaneous expenses.....	98.99

	125,131.73
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Balance on hand to be accounted for June 30, 1898	10,836.34
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In United States Treasury.....	31.22
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In hands of disbursing officers:

New York.....	418.19
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Washington.....	386.93
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With Philippine expedition	10,000.00
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	10,836.34
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The above balance of \$10,836.34 remaining on hand July 1, 1898, has since been all expended.

Medical and Hospital Department, 1897:

Balance on hand July 1, 1897, act of March 6, 1896.....	\$54,417.24
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Refunded during the year.....	48.54
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Total to be accounted for	54,465.78
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Medical and Hospital Department, 1897—Continued.

Disbursed during the year:	
Medical supplies.....	\$21,281.68
Pay of employees.....	100.00
Medical attendance and medicines.....	3,190.38
Washing at post hospitals.....	162.28
Miscellaneous expenses.....	244.22
	\$24,978.56
Balance on hand to be accounted for June 30, 1898.....	29,487.22
In United States Treasury.....	24,841.56
In hands of disbursing officers:	
New York.....	956.53
St. Louis.....	2,672.85
Washington.....	1,016.28
	29,487.22

Medical and Hospital Department, 1896:

Balance on hand July 1, 1897, act of February 12, 1895.....	62,344.96
Disbursed during the year.....	50.00
Transferred to surplus fund.....	62,294.96
	62,344.96

Medical and Hospital Department, January 1, 1899:

Appropriated by act approved May 4, 1898.....	50,000.00
Appropriated by act approved June 8, 1898.....	50,000.00

Total to be accounted for.....	100,000.00
Disbursed:	
Medical supplies.....	49,344.30
Pay of employees.....	356.65
Expenses of recruiting.....	5,975.63
Medical attendance and medicines.....	1,270.80
Washing at post hospitals.....	47.44
Miscellaneous expenses.....	49.18
	57,044.00
Balance on hand to be accounted for June 30, 1898.....	42,956.00
In hands of disbursing officers:	
New York.....	21,269.88
St. Louis.....	13,418.30
Washington.....	1,473.42
San Francisco.....	1,794.40
With Major Torney, hospital ship <i>Relief</i>	5,000.00
	42,956.00

National defense (war) act of March 9, 1898:

Allotment by the President, April 16, 1898.....	20,000.00
Disbursed for medical supplies.....	19,964.39
Balance on hand June 30, 1898.....	35.61
	20,000.00

It is estimated that about \$120,000 of the amounts reported in the above statement as expended up to and including June 30, 1898, have been used for extraordinary war expenses.

Since July 1 the following sums have been appropriated for war expenses on account of the Medical Department of the Army, namely:

By deficiency act, July 7, 1898.....	\$504,000.00
National defense (war):	
By allotment of the President, September 8, 1898.....	500,000.00
By allotment of the President, October 6, 1898.....	500,000.00
	1,504,000.00

Of this sum there are at this date (November 1, 1898) available \$395,000, all of which will be required for the payment of claims and accounts on account of war expenses now in this office and to be presented before December 31 of this year.

In addition to these sums there were also appropriated by the act approved March 15, 1898, \$115,000, being the regular annual appropriation for the Medical and Hospital Department for the fiscal year 1899. Of this appropriation it is estimated that \$50,000 have now been expended for war measures.

Artificial limbs, 1898:

Appropriated by act approved June 4, 1897	\$183,000.00
Disbursed during the year	159,775.27
Balance on hand June 30, 1898.....	23,224.73

Artificial limbs, 1897, act approved June 11, 1896:

Balance July 1, 1897	22,145.54
Disbursed during the year	12,270.34
Balance on hand June 30, 1898.....	9,875.20

Artificial limbs, 1896, act approved March 2, 1895:

Balance July 1, 1897	.19
Transferred to surplus fund	.19

Artificial limbs, certified claims, 1896:

Appropriated by deficiency act approved July 19, 1897.....	171.73
Disbursed	171.73

Appliances for disabled soldiers, 1898:

Appropriated by act approved June 4, 1897.....	2,000.00
Disbursed during the year.....	1,282.21
Balance on hand June 30, 1898.....	717.79

Appliances for disabled soldiers, 1897, act approved June 11, 1896:

Balance July 1, 1897.....	954.73
Disbursed during the year.....	169.71
Balance on hand June 30, 1898.....	785.02

Appliances for disabled soldiers, 1896, act approved May 2, 1895:

Balance July 1, 1897	671.85
Transferred to surplus fund	671.85

Army Medical Museum, 1898:

Appropriated by act approved March 2, 1897	5,000.00
Disbursed during the year	4,930.72
Balance on hand June 30, 1898.....	69.28

Army Medical Museum, 1897, act approved March 16, 1896:

Balance July 1, 1897	117.24
Disbursed during the year	117.24

Army Medical Museum, 1896, act approved February 12, 1895:

Balance July 1, 1897	.47
Transferred to surplus fund	.47

Library, Surgeon-General's Office, 1898:

Appropriated by act approved March 2, 1897	10,000.00
Disbursed during the year	9,746.79
Balance on hand June 30, 1898	253.21

Library, Surgeon-General's Office, 1896, act approved February 12, 1895:

Balance July 1, 1897	11.10
Transferred to surplus fund	11.10

Furnishing and fitting trusses for disabled soldiers, sections 1176, 1178,**R. S., act of March 3, 1879:**Expended during the year \$9,032.66**Providence Hospital:**

Appropriated by act approved June 4, 1897 19,000.00

Expended during the year 19,000.00**Appropriated by act approved March 2, 1897:**

Construction and repair of hospitals 75,000.00

Disbursed during the year 74,816.84Balance on hand June 30, 1898 183.16**Appropriated by act approved March 2, 1897:**

Construction and repair of quarters for hospital stewards 7,000.00

Disbursed during the year 6,957.12Balance on hand June 30, 1898 42.88**ARTIFICIAL LIMBS AND THEIR COMMUTATION.**

Under the provisions of law relating to artificial limbs there were furnished during the year ended June 30, 1898, 32 artificial legs, 2 feet, and 1 apparatus for exsection, and commutation certificates were issued for 145 cases of amputated leg, 106 arms, 8 feet, and in 2,909 cases of loss of the use of a limb, involving an expenditure of \$172,217.59 from the available appropriations.

The cases of benefits recurring under the laws relating to artificial limbs during the fiscal year ending June 30, 1900, are those last paid in the year ended June 30, 1897. These benefits recur every three years. To cover those of the last-mentioned year the sum of \$575,000 was appropriated by the act approved June 11, 1896, and nearly the whole of this has been expended. It is considered that the sum of \$547,275 will suffice to pay all commutations and the cost of artificial limbs and of the transportation to procure them during the year ending June 30, 1900.

APPLIANCES FOR DISABLED SOLDIERS.

The number of appliances issued to disabled soldiers during the year was 197, for which was disbursed the sum of \$1,451.92.

TRUSSES.

The number of trusses issued and fitted during the year was 1,280.

PROVIDENCE HOSPITAL.

The act of Congress approved June 4, 1897, appropriated \$19,000 for the support and medical treatment of destitute patients in the city of Washington, D. C., under a contract to be made with the Providence Hospital by the Surgeon-General of the Army. The amount of relief afforded under this appropriation was as follows:

Patients in hospital July 1, 1897 118

Admitted during the year 1,282Total number treated 1,400

Average number admitted per month.....	117
Number remaining in hospital June 30, 1898.....	119
Total number of days' treatment afforded.....	40, 625
Average number of days' treatment per patient.....	31
Average number of patients treated per day.....	111
Longest term of treatment (days).....	365
Shortest term of treatment (day).....	1
Number of patients in hospital during the whole year.....	22

ARMY AND NAVY GENERAL HOSPITAL, HOT SPRINGS, ARK.

Officers' division.—Thirty-one officers were treated during the calendar year, of whom 23 recovered sufficiently to resume their duties or were much improved, by an average treatment of forty days.

Enlisted men's division.—During the calendar year 119 cases were completed—89 by return to duty, 25 by discharge for disability, 4 by discharge on account of expiration of term of service, and 1 by death. The number treated for rheumatism was 81, of whom 63 were returned to duty, and six months after these men were so returned 55 of them were found to be doing full duty with their companies, 1 had been discharged on account of expiration of term, and 7 had been discharged on account of a recurrence of their rheumatism.

Division of honorably discharged men.—Under the provisions of General Order 26, Adjutant-General's Office, dated May 25, 1897, honorably discharged soldiers and sailors of the Regular and Volunteer Army and Navy are admitted for treatment under conditions and regulations prescribed by the Surgeon-General of the Army and approved by the Secretary of War, Circular No. 1, Surgeon-General's Office, dated May 8, 1897. Thirty-seven men were admitted under permits issued by the Surgeon-General, 17 of whom were remaining under treatment December 31, 1897.

HOSPITALS AND HOSPITAL STEWARDS' QUARTERS.

During the fiscal year ended June 30, 1898, the new hospitals at Fort Hamilton, N. Y., and Fort Monroe, Va., were completed and occupied. An additional ward for twelve beds was added to the hospital at Fort Wayne, Mich., and the interior arrangements of the administration building were increased. A third ward, for twelve beds, was provided in the hospital at Washington Barracks by completing the third floor under the mansard roof, and the hospitals at the Presidio of San Francisco and other places were placed in thorough condition. Buildings were also fitted up for temporary hospital purposes at Fort Washington, Md., Sullivans Island, S. C., Fort Delaware, Del., and funds were used in providing for general and other hospitals rendered necessary by the war with Spain.

Quarters for hospital stewards were built at Fort Bliss, Tex., and Fort Leavenworth, Kans., and additions were made to similar buildings at other posts for the purpose of making them more comfortable.

* * * * *

MEDICAL OFFICERS.

During the year ended June 30, 1898, there were 124 medical officers, United States Army, and 60 contract surgeons on duty in the field.

Appointments.—Nineteen assistant surgeons with the rank of first lieutenant.

Promotions.—Two surgeons with the rank of major to be deputy surgeons-general with the rank of lieutenant-colonel; 6 assistant surgeons with the rank of captain to be surgeons with the rank of major;

10 assistant surgeons with the rank of first lieutenant to be assistant surgeons with the rank of captain.

Deaths.—One surgeon with the rank of major; 1 assistant surgeon with the rank of captain.

Retirements.—Two deputy surgeons-general with the rank of lieutenant-colonel; 2 surgeons with the rank of major; 1 assistant surgeon with the rank of first lieutenant.

Resigned.—One assistant surgeon with the rank of captain; 1 assistant surgeon with the rank of first lieutenant.

A board was convened in Washington, D. C., September 27, 1897, to examine candidates for admission into the Army Medical Department. Of 45 candidates who were authorized to appear before the board, 34 presented themselves for examination, and of these only 6 were accepted; 7 were rejected on account of physical defects. Before another board convened in the same city May 2, 1898, 136 candidates were authorized to appear. Of 97 who presented themselves for examination, 13 were accepted; 16 were rejected on account of physical defects.

HOSPITAL CORPS.

On June 30, 1897, there were in service 98 hospital stewards, 99 acting hospital stewards, and 513 privates, a total of 710.

The act of March 16, 1896, fixed the number of hospital stewards thereafter at 100 (appropriation for support of Army, July 1, 1896–June 30, 1897), two vacancies existing in the grade on July 1, 1897. The act approved March 1, 1887, organizing the Hospital Corps of the Army of the United States of America (section 7), empowered the Secretary of War to detail privates of the corps as acting hospital stewards “whenever the necessities of the service required it,” thus providing at all times a sufficient number of that grade for the needs of the service. The same act (section 5) empowered the Secretary of War “to enlist, or cause to be enlisted, as many privates of the Hospital Corps as the service may require, and to limit or fix the number,” and further provided that “any enlisted man in the Army shall be eligible for transfer to the Hospital Corps as a private.” It also directed that “they shall perform duty as wardmasters, cooks, nurses, and attendants in hospitals, and as stretcher bearers, litter bearers, and ambulance attendants in the field, and such other duties as may by proper authority be required of them.” The enacting clause directed that the corps “shall consist of hospital stewards, acting hospital stewards, and privates; and all necessary hospital service in garrison, camp, or field (including ambulance service) shall be performed by the members thereof, who shall be regularly enlisted in the military service.” It also attached the Hospital Corps permanently to the Medical Department, and provided that it should not be included in the effective strength of the Army nor counted as a part of the enlisted force provided by law. Up to January 31, 1898, the wants of the service were fully supplied by the employment of 99 hospital stewards, 100 acting hospital stewards, and 519 privates.

The discipline of the corps may be inferred from the fact that up to May 31, 1898, only 1 hospital steward and 4 privates were discharged by sentence of general court-martial. During the period from July 1, 1897, to March 31, 1898, the gains and losses balanced each other so nearly that the total number in service in the corps oscillated only between 710 on June 30, 1897, and 723 on March 31, 1898.

The act of June 16, 1890, granting three months' furlough at the end

of the third year of a five-year enlistment ceased to operate on November 1, 1897. This added greatly to the efficiency of the corps.

With the view of filling existing vacancies in the grades of hospital steward and acting hospital steward, and providing an eligible list from which to meet emergencies, examinations were held in November and December, 1897. Thirty-two candidates passed the examination for the position of steward, and 22 for that of acting steward, all of whom were appointed by the end of May, 1898. To provide for any increase of hospital stewards required by the establishment of a number of military posts, and the organization of expeditions to Alaska, I recommend an increase to 115, this being thought to be the lowest number that would meet the then existing conditions of peace.

* * * * *

RECRUITING.

The total number of men examined for enlistment during the year 1897 was 13,139, of whom 12,131 were white and 1,008 were colored. The number accepted was 9,226, or 702.19 out of every thousand examined. The physique of the colored candidates was apparently of a higher order than that of the white men, as their ratio of accepted men was 786.71 per thousand as compared with 695.16 among the white candidates. White men to the number of 33.30 and colored men to that of 16.86 per thousand declined enlistment. The rate of rejections on primary examination was 271.54 among the white and 196.43 among the colored candidates, giving a mean of 265.77 rejections per thousand of those examined. This shows an improvement in the character of the candidates, for in 1896 the ratio of rejections was 371.65; in 1895, 473.45, and in 1894, 508.50. The care taken in the examination of recruits has not in any way been relaxed during recent years.

Of every thousand candidates examined 90.19 were rejected on account of imperfect physique, under weight, under height, etc.; 37.14 for diseases of the eye, 27.55 for diseases of the circulatory system, 23.52 for diseases of the genito-urinary system, 12.48 for diseases of the digestive system, 10.80 for venereal diseases, while 10.73 were rejected on account of bad or doubtful character or unsatisfactory references, 7.15 as generally unfit or undesirable, and only 2.43 on account of illiteracy, imperfect knowledge of the English language or mental insufficiency.

Of every thousand of the accepted men 742.47 were natives of the United States, 80.53 were born in Germany, 77.28 in Ireland, 23.20 in England, 13.98 in Sweden, 13.22 in Canada, 7.48 in Denmark, and 7.05 in Austria; the remainder in various other countries.

Of the 9,226 accepted men 38 were under 20 years of age, average 17.2 years; 4,021 were between 20 and 24 years of age, average 22.1 years; 2,581 were between 25 and 29 years, average 36.7; 1,098 between 30 and 34 years, average 31.7; 735 between 35 and 39 years, average 36.8, and 753 were over 40 years of age. The average age of the whole number was 27.6 years.

The average height was 67.59 inches. The native white man was taller, 67.75 inches, than the colored man, 67.56 inches, or the foreign-born recruit, 67.20.

The average weight was 147.07 pounds, the colored men being the heaviest, 150.28 pounds. The foreign-born recruit was slightly heavier, 147.55 pounds, than the native American, 146.47.

The average chest expansion was from 34.42 to 37.38 inches. The

native white man had an expansion of 3.01, or from 34.25 to **37.26**; the foreign born 2.97 inches, or from 34.84 to 37.81, and the colored man 2.73 inches, or from 34.28 to 37.01.

* * * * *

HEALTH OF THE ARMY.

The health of the Army during the calendar year 1897 was excellent, as may be seen from the following statement of its sick rates: The admissions for disease and injury during the year amounted to 1,186.61 per thousand of the strength present as compared with 1,110.39 in the previous year, with 1,258.89 the average annual rate of the previous decade, and with 1,089.73 the lowest rate of our Army, recorded in the year 1894. The rate for disease was 896.53, the lowest rate, recorded in 1896, having been 830.65. The number constantly sick, or the rate of nonefficiency, was 35.85 per thousand of strength, as compared with 33.97 during the previous year, with 40.26 the average annual rate of the previous decade, and with 33.89 in 1895, the lowest recorded rate. The average number of days lost on account of sickness for each man of the Army was 13.08, as compared with 12.43 in 1896, and with 14.64 the average annual rate of the preceding decade. The rate of discharge on account of disability was 9.61, the lowest recorded rate, as compared with 10.15 in 1896 and with 19.78 the annual rate of the previous decade. The total death rate for the year, 5.11, and the death rate from disease, 3.14, were also lower than the lowest rates heretofore recorded, 5.16 for disease and injury in 1895, and 3.83 for disease alone in 1896.

The admission rate of the white troops for the year was 1,180.84, for the colored troops 1,248.61, while the rates of nonefficiency were respectively 35.72 and 37.24 per thousand of strength. In my last annual report I noted the gradual improvement in the health of the colored troops which in 1896 culminated in rates of admission and nonefficiency considerably lower than those of the white commands. The increased rates of the past years were mainly due to venereal affections, rheumatism and myalgia, bronchitis, and disorders of the digestive system.

The total number of discharges for disability was 263, of which 208 resulted from disease and 55 from injuries. Forty-nine discharges were occasioned by diseases of the nervous system, 31 by consumption, 25 by rheumatism and myalgia, and 20 by heart disease. Excluding small posts, the largest rate of discharge, 37.27, was furnished by 6 cases at Whipple Barracks, Ariz. The largest absolute number at any one post was 10 at Fort Huachuca, Ariz., giving a rate of 33.90.

The deaths numbered 140—86 from disease and 54 from injuries. Gunshot wounds occasioned 19 deaths; typhoid fever, consumption, and disease of the heart 9 each. Five deaths, the largest number occurring at any one post, were reported from each of seven posts: Fort Riley, Kans.; the Presidio of San Francisco, Cal.; Fort Sheridan Ill.; Fort Sam Houston, Tex.; Columbus Barracks, Ohio; Fort Meade, S. Dak., and Fort McPherson, Ga.

HEALTH OF THE MILITARY DEPARTMENTS.

The admission rate varied in the military departments from 784.44 per thousand of strength in the Department of the Columbia to 1,522.14 in the Department of Texas, and the rate of nonefficiency from 25.65 to 39.65 in these same departments; the discharge rate, from 4.59 in the Department of the Platte to 13.93 in the Department of the

Colorado, and the death rate from 3.15 in the Department of California to 7.27 in the Department of the Platte.

DEPARTMENT OF THE EAST.

Average strength, 8,018 men; rate of admission, 1,260.04 per thousand of strength; nonefficiency, 35.83; discharge, 8.85; death, 5.61. These rates do not differ much save in a slight excess of admissions from the average rates of the Army, and the excess of admissions was the result of an increased prevalence of venereal diseases. Fort Barrancas had the largest rates of any post in this department—admission 2,000 and nonefficiency 77.34 per thousand of strength, the excess due to the great prevalence of malarial and venereal diseases and injuries. Fort Wadsworth had the high admission rate of 1,907.22, but its nonefficiency was only 37.17; bronchitic attacks, diarrheal diseases, and injuries constituted the excess of admissions. Fort Myer, Washington Barracks, and St. Francis Barracks followed, with 1,818.50, 1,759.32, and 1,777.78, respectively, as their admission rates, and 51.65, 47.48, and 40.41 as their rates of nonefficiency. The excess was due at the first-mentioned post chiefly to malarial diseases and injuries; at the second, to malarial diseases, and at the last, to disorders of the digestion, injuries, and malarial affections. Fort Adams had an admission rate of 1,676.06, with a nonefficiency of 51.68, and Fort Slocum had a similar admission rate, but with only 36.92 of constant sickness. Injuries and diarrheal diseases constituted the excess at the former post, and injuries, tonsillitis, and constipation, alcoholism, and neuralgia at the latter. Forts McPherson, Thomas, and Monroe and Jefferson Barracks had both rates larger than the average of the Army, while Willets Point, West Point, and Madison Barracks had the nonefficiency comparatively small, although the admission rate was large. The rates at Columbus Barracks did not differ much from the army average. The other posts in the department had low rates. Fort Ethan Allen, for instance, had 931.62 admissions and 28.86 of constant sickness; Fort Hamilton, 742.05 and 31.32, and Fort Porter, only 546.15 and 19.18.

DEPARTMENT OF THE MISSOURI.

Average strength, 4,341 men. Rate of admission, 1,188.89 per thousand of strength; nonefficiency, 36.25; discharge rate, 6.91; death rate, 5.30. The rate for discharge is low, while the other rates are similar to those of the Army generally. Fort Riley, Jefferson Barracks, and Fort Leavenworth had the highest rates in this department, the admissions being, respectively, 1,484.08, 1,426.13, and 1,251.88, and the nonefficiency 41.70, 43.69, and 43.78. At Fort Riley the excess of admissions was due to venereal and diarrheal affections, rheumatism, boils and abscesses, and injuries; at Fort Leavenworth to malarial and venereal diseases; and at Jefferson Barracks to venereal diseases, tonsillitis, bronchitis, and injuries, while malarial and diarrheal diseases at this post were below the average. Fort Logan H. Roots had the admission rate larger and the nonefficiency smaller than the average army rate, and the reverse of this held good at Fort Wayne. The average rates prevailed at Forts Reno and Sill, while the rates at Forts Brady and Sheridan were below the average, being at the former post 760.18 and 25.75, and at the latter 903.92 and 28.05.

DEPARTMENT OF DAKOTA.

Average strength, 2,513 men. Rate of admission, 975.33 per thousand of strength; nonefficiency, 33.93; discharge rate, 9.55; death rate, 4.77.

All these rates compare favorably with the average rates of the Army. Fort Keogh was the only post in this department which had high rates: Admissions, 1,615.65; nonefficiency, 59.67. Rheumatism and myalgia and injuries caused the high rates, notwithstanding lower figures than the average for malarial and venereal diseases. The best record was given by Fort Yellowstone: Admissions, 280.30; nonefficiency, 6.68.

DEPARTMENT OF THE PLATTE.

Average strength, 2,612 men. Admission rate, 1,294.41; nonefficiency, 36.99; discharge rate, 4.59; death rate, 7.27. Forts Crook and Washakie had the average rate of admission; at the former there was a slight excess of nonefficiency, due wholly to gonorrhea and syphilis, while at the latter the nonefficiency was below the average. Fort Meade had the largest admission rate of any post in this department, 1,669.47, although its constant sickness was but little above the average; its large admission rate was the result of an increased prevalence of tonsillitis, bronchitis, rheumatism, and injuries. Fort D. A. Russell followed with an admission rate of 1,547.83 and a nonefficiency of 42.79, the result of increased prevalence of alcoholism, neuralgia, coryza, tonsillitis, and injuries. Fort Robinson had 1,497.53 as an admission rate and 47.27 expressing its nonefficiency, due to excess of venereal diseases, tonsillitis, bronchitis, and rheumatism. Malarial affections were infrequent at the two last-named posts. Fort Niobrara had the best record: Admissions, 865.50; nonefficiency, 26.96.

DEPARTMENT OF TEXAS.

Average strength, 1,762 men. Admission rate, 1,522.14; nonefficiency, 39.65; discharge rate, 7.38; death rate, 6.24. Two posts in this department had more than two entries per man on the sick report during the year. At Fort McIntosh the admission rate was 2,312.50, with a nonefficiency of 52.14, and at Fort Clark these rates were, respectively, 2,174.26 and 49.58. At the former post there was an increased prevalence of diarrheal diseases, boils and abscesses, and injuries, and the rates for venereal diseases were excessive. At the latter the high rates were caused by diarrheal diseases, bronchitis, rheumatism, injuries, and venereal affections. The rates at Camp Eagle Pass and Fort Brown were also high: Admissions, 1,890.62 and 1,741.07, respectively, and nonefficiency, 54.58 and 63.70. Venereal, malarial, and diarrheal affections and injuries occasioned the large rates at the one post, and malarial and venereal diseases, boils and abscesses, and injuries at the other. Fort Sam Houston had the admission rate somewhat larger and the nonefficiency somewhat smaller than the average rates of the Army. The best record in this department was given by Fort Bliss: Admission rate, 886.22; nonefficiency, 28.55.

DEPARTMENT OF THE COLORADO.

Average strength, 3,087 men. Admission rate, 1,274.05; nonefficiency, 35.66; discharge rate, 13.93; death rate, 3.56. Forts Huachuca and Douglas had the highest rates: Admissions, 1,715.42 and 1,720.84, respectively, with 50.37 and 42.70 representing their nonefficiency. At Fort Huachuca tonsillitis, bronchitis, rheumatism and myalgia, injuries, and venereal diseases constituted the excess, and at Fort Douglas bronchitis, venereal diseases, tonsillitis, colic and constipation, rheumatism and myalgia. The rates at Fort Logan also were considerably higher than the average, notwithstanding low figures for

malarial and diarrheal diseases. They were due to vaccinia, venereal diseases, tonsillitis, colic and constipation, rheumatism and myalgia, and injuries. Whipple Barracks had a low admission rate, 975.16, but a high nonefficiency, due to some prolonged cases of consumption, typhoid fever, and heart disease. Forts Apache, Bayard, and Grant had good records, the admission rates being, respectively, 842.25, 905.82, and 1,025.24, and the nonefficiency 24.33, 28.31, and 25.23.

DEPARTMENT OF CALIFORNIA.

Average strength, 1,588 men. Admission rate, 813.60; nonefficiency, 26.33; discharge rate, 6.30; death rate, 3.15. The small post of San Diego Barracks was the only post in the department having rates in excess of the average of the Army: Admissions, 1,196.97; nonefficiency, 40.60, the excess of nonefficiency being due to consumption and injuries. The Presidio of San Francisco, notwithstanding its large number of men and its proximity to the city, had an admission rate of only 887.25 and a nonefficiency of 26.10. Its rates for venereal disease and alcoholism were below the average; the only disease that prevailed in excess of the army average was conjunctivitis. Alcatraz Island had the best record, with an admission rate of 711.11 and a nonefficiency of 24.66; for although Angel Island and Fort Mason had lower admission rates, their rates of nonefficiency were, respectively, 32.72 and 33.66.

DEPARTMENT OF THE COLUMBIA.

Average strength, 1,452 men; Admission rate, 784.44; nonefficiency, 25.65; discharge rate, 10.33; death rate, 6.20. None of the posts in this department had rates in excess of the average, except in the case of deaths and discharges. The largest post, Vancouver Barracks, with a strength of 560 men, had only 801.79 admissions per thousand of strength and a nonefficiency of 22.90. The highest admission rate in the department was recorded at Fort Walla Walla, 916.67; the lowest, 608.11, at Fort Canby. The highest and lowest rates of constant sickness were also recorded at these posts: Fort Walla Walla, 44.10; Fort Canby, 14.96.

HEALTH OF INDIVIDUAL POSTS.

Three posts had two or more entries on the sick report per man of their average strength. The rate of admission at Fort McIntosh, Tex., was 2,312.50; at Fort Clark, Tex., 2,174.26, and at Fort Barrancas, Fla., 2,000 per thousand of strength. The diseases which by their increased prevalence occasioned these high rates have already been mentioned in discussing the health of the departments. Fort Myer, Va., and Washington Barracks, D. C., which for several years past have recorded the highest admission rates, dropped during the past year to the sixth and eighth places on the list of posts having the highest rates of admission.

The highest rate of constant sickness, 77.34 per thousand of strength, was given by Fort Barrancas, Fla. Fort Brown, Tex., takes second place on this list, with a rate of 63.70. Nine posts recorded rates of from 50 to 60 per thousand in the order of decreasing rates, as follows: Fort Keogh, Mont.; Camp Eagle Pass, Tex.; Whipple Barracks, Ariz.; Fort Thomas, Ky.; Fort McIntosh, Tex.; Fort Adams, R. I.; Fort Myer, Va.; Jackson Barracks, New Orleans, La., and Fort Huachuca, Ariz.

Fort Yellowstone, Wyo., had the lowest admission rate, 280.30, but

this was probably due to accidental or exceptional conditions. **Three** posts had less than 600 taken sick per thousand of strength—**Fort Mason, Cal.; Fort Porter, N. Y., and Sandy Hook Proving Ground, N. J.**—and two had less than 700—**Fort Canby, Wash., and Angel Island, Cal.**

Sandy Hook had the lowest rate of constantly noneffective, 5.52 per thousand of strength, but was closely followed by **Fort Yellowstone, Wyo., 6.68. Fort Canby, Wash., Fort Porter, N. Y., and Fort Spokane, Wash.,** had less than 20 men constantly sick per thousand of strength. Of the large posts, **Vancouver Barracks, Wash.,** had the best record, an admission rate of 801.79 and a nonefficiency of 22.90.

PREVALENCE OF SPECIAL DISEASES.

SCARLET FEVER.

Six cases of this disease occurred among enlisted men of the Army during the calendar year 1897—3 at **Fort Adams, R. I.,** and 1 each at **Fort Leavenworth, Kans., Fort Niobrara, Nebr., and Plattsburg Barracks, N. Y.** One case occurred in August, in the person of a cadet at the **Military Academy, West Point, N. Y.,** the infection having been derived from the neighboring village of **Highland Falls.** Children at the post were prohibited from attending school in the village. Another case of the disease occurred in March, 1898, in the family of a civilian employee at the post. Three cases among the children of two families occurred at **Fort Wayne, Mich.,** the disease having been contracted apparently in the **Belle Fontaine Public School of Detroit, Mich.** Seven cases occurred at **Fort Douglas, Utah,** 4 in one family, all from infection introduced from outside the post; 3 cases in each of two families at **Fort DuChesne, Utah,** and 1 case in a family of four children at **Fort Yates.** Strict isolation and disinfection suppressed the disease in all these instances.

MEASLES.

This disease was reported during the calendar year as affecting the troops at 32 military posts. **Fort Monroe, Va.,** had the largest number of cases, 52; **Vancouver Barracks, Wash.,** had 25; **Fort Leavenworth, Kans.,** 21, and **Fort Keogh, Mont.,** 14. In all, 227 cases were reported. At 9 posts the disease was not permitted to spread from the man first affected. The prevalence of measles at **Fort Monroe** was prolonged into the present calendar year, and from this post the disease was propagated by transfer of troops to **Sheridans Point, Va.; Fort Washington, Md.; Fort Caswell, N. C., and Camp Graham, Tybee Island, Ga.** Correspondingly on the Pacific coast the prevalence of the infection at **Vancouver Barracks** gave origin to cases at **Fort Canby, Wash.** The existence of the disease in many parts of the country and in certain army posts in the early months of the present year led to the invasion of some of our war camps and garrisons by this infection. Special reports from **Camp Black, Long Island; Camp Alger, Va.; Camp Thomas, Ga.; Camp Northen, Griffen, Ga.; Columbia, S. C.; Key West Barracks, Fla., and Camp Merritt, Cal.,** indicated the presence of the infection, and the active measures taken for its suppression.

The epidemic at **Vancouver Barracks** was thus reported by **Maj. John Van R. Hoff, surgeon, United States Army:**

November, 1897.—The threatened epidemic of measles, which was announced by the appearance of 3 cases of the disease early this month in **A Company, Fourteenth Infantry,** has thus far materialized to the extent of 6 cases in **A, 1 in B, 1 in D, 2 in E,** and 1 in **H,** these organizations having had thus far all the cases which have

fallen under observation. Considering the fact that the infection has shown a decided tendency to spread within the organization where it first appeared, it is reasonable to believe that unless the utmost precaution is taken the disease will be scattered broadcast in the command. Not only should the men who are infected be quarantined, but their bunks, bedding, clothing, in fact all their property should be at once removed from the squad rooms, thoroughly aired, and all but the bunk, if the latter be required, locked up away from possible contact with the men of the company or their property. The bunks and bottoms should be aired, washed with soap and water, and then with sublimate solution. The place in the dormitory where the bunk stood and where the clothing hung should be thoroughly scrubbed with sublimate solution, and after being aired for a day or so the bunk may be returned to its proper place. The men of all the organizations should be closely watched by their officers, and carefully inspected every day, particularly with a view to the detection of this special infection. All suspected cases should at once be separated from the other men. The foregoing rules are so simple and so obvious that I presume they have already been carried out. The actual sick are quarantined in two tents of the field hospital, which have been made comfortable with floors and a box stove. As epidemics of this character usually culminate in December, it will probably be necessary to extend the quarantine accommodations by at least two more hospital tents. The cases thus far have proved amenable to treatment.

December, 1897.—As anticipated in my last report, the epidemic of measles has continued, 13 new cases having reported for treatment from the various organizations, as follows: B company, Fourteenth Infantry, 3 cases; D, 2 cases; E, 1 case; F, 2; G, 2; H, 1, and Troop E, Fourth Cavalry, 2 cases. From this it will be seen that the disease is apparently stamped out in A, Fourteenth Infantry, where it first appeared, and while it is or has been present in eight of the nine organizations here (C Company alone having escaped) it has not spread widely in any company. This is believed to be due to careful inspection, resulting in the immediate isolation of suspicious cases. Among the civilians attached the epidemic appeared during the month and has rapidly extended. This is not surprising when it is known that the neighboring town of Vancouver is reported to be filled with cases of this disease, and I am told that no effort is made to quarantine or in any way control the epidemic. Children broken out with measles are permitted to appear at school, while the various assemblages of people frequent about the holidays are freely attended by persons in all stages of the disease. Since nothing but a picket fence separates the post from the town, it is impossible to exclude so contagious a disease from that part of the reservation pertaining to the post, but when it comes among us we can, as we have done, isolate it, an example which may perhaps appeal to the more intelligent of our neighbors. The two tent wards have enabled us to most comfortably care for the infected patients, and have left the hospital free and uninfected to meet the current demands made upon it. All cases of measles up to the present time have progressed favorably.

January, 1898.—The epidemic of measles previously referred to has continued during the month with decreasing virulency among the men. One case was admitted to hospital from Company C, Fourteenth Infantry, 1 from D, 7 from F, 1 from G, and 2 from H. Every suspicious case was put in the observation tent, and if measles developed was at once transferred to the contagious ward. In comparatively few instances was the eruption manifest at the time of admission. The cases have all thus far progressed favorably. Five remain under treatment. Among the civilians attached the disease has simply run riot, until now it has culminated, there being little material left to attack. Nor is this an unexpected result. The neighboring town was literally overrun with the disease, and no precaution was taken to control it until it had passed beyond control.

February, 1898.—The epidemic of measles heretofore noted ceased during the month; the last case, which occurred in C Company, Fourteenth Infantry, having been returned to duty on the 16th. During this epidemic, which declared itself November 6, 1897, 82 cases (men, 41; civilians attached, 41) were treated. The strictest isolation was enforced, and all patients recovered. The tent wards used during this epidemic, as heretofore stated, proved a most satisfactory shelter for the sick, and wholly relieved the hospital building of a stress which would have materially interfered with its usefulness for any other purpose than the treatment of infectious diseases. As it was, the ordinary work of the hospital went on without the slightest change or inconvenience.

SMALLPOX.

Only one case of this disease occurred among the troops during the calendar year. It was reported from Madison Barracks, N. Y. In March, April, and May, 1898, reports of the occurrence of the disease among negro laborers at Forts Barrancas and Pickens, Fla., and of its

with 40.73 in the preceding year. Fort Meade, S. Dak., had 95 cases; Fort Logan, Colo., 60; Fort Huachuca, Ariz., 57; Fort Thomas, Ky., 49; Fort D. A. Russell, Wyo., 46, and Fort Douglas, Utah, 41.

CEREBROSPINAL MENINGITIS.

No case was reported during the calendar year either among soldiers or citizens attached to or in the neighborhood of military posts; but on April 20, 1898, Capt. Thomas U. Raymond, assistant surgeon, United States Army, reported from Fort Canby, Wash., that two cases fulminant in character had occurred in the town of Ilwaco, Wash., one terminating fatally in twenty four, the other in eighteen, hours. A third case, also fatal, occurred a few days later at a settlement 10 miles distant from Ilwaco. No other case was reported.

DENGUE.

In his sanitary report for September, 1897, Maj. A. A. De Loffre, surgeon, United States Army, made note of the prevalence of dengue in San Antonio, Tex., and at his post, Fort Sam Houston, Tex. The disease appeared at the post August 26, 3 cases occurring during the remaining days of the month. In September, 141 cases occurred among the troops, their average strength being 522, and over 100 cases were cared for among the families of soldiers and attachés of the camp. At Fort McIntosh, Tex., also, the garrison suffered in like manner during the same month.

YELLOW FEVER.

On September 7, 1897, Capt. W. C. Gorgas, assistant surgeon, United States Army, reported from Fort Barrancas, Fla., the probable presence of yellow fever at Ocean Springs, Miss., stating that the local authorities were taking active steps for keeping the city of Pensacola in good condition, and next day he telegraphed confirmation of the existence of yellow fever at Ocean Springs. On September 12 Capt. R. S. Woodson, assistant surgeon, United States Army, announced the acknowledgment by the board of health of the presence of 6 cases of yellow fever in the city of New Orleans, La., and recommended the withdrawal of the garrison from Jackson Barracks. The troops left for Chickamauga Park on the evening of September 14, the post surgeon, one hospital steward, and one member of the hospital corps remaining with the few men who were left to take charge of the public property at the barracks. Two cases, one fatal, occurred later in the season among these men, and 2 in the family of the hospital steward. On September 15 Col. Charles H. Alden, Acting Surgeon-General, recommended that on the appearance of yellow fever in the vicinity of Fort Barrancas the troops at that station should be withdrawn to Fort McPherson or Chickamauga Park, Ga. On the same day the surgeon at Fort Barrancas reported the presence of yellow fever at Mobile, Ala., and two days later the occurrence of 2 cases in the vicinity of Fort Morgan, Ala. On September 20 the Adjutant-General directed the commanding general, Department of the East, to have the post commander of Fort Barrancas instructed to cooperate with the authorities of the Pensacola Navy-Yard in doing everything possible to guard against the approach of yellow fever, and, if thought advisable, to remove the garrison to Fort McPherson, Ga. The commanding officer made all arrangements for leaving the post on September 21, but suspended them on the representation of the post surgeon

that the gravity of the situation was not as yet such as to call for a movement of this kind. He said:

Florida and Pensacola have a good system of quarantine, and after careful investigation I have come to the conclusion that there is only a remote possibility of Pensacola having the fever, and still more remote of our having it here. I am in daily and confidential communication with the State health officers, who are at present located in Pensacola, and believe that I get the most reliable information obtainable.

But even if we do become infected—the very remotest possibility—we could get aboard the cars, go to Chickamauga Park under the supervision of the Marine-Hospital Service, there go into camp of detention for ten days, and then be free to join the command there. I can see no reason for going at present. If the fever reaches Pensacola or gets amongst us we could do exactly what you would have to do in going to-morrow, with the exception that we would have to isolate ourselves from the rest of the command for the period of ten days. I have seen the State health officer this morning, and got my information from him. He has had twenty years' experience with State and national quarantine, and is thoroughly posted as to laws and customs.

Nevertheless, on November 8, when the disease was on the wane and the removal of quarantine restrictions was under consideration, a case was discovered in Pensacola which, after death on the 14th, was recognized as one of undoubted yellow fever; and on the 12th one of the soldiers of the garrison became affected. He died on the 20th, but in the meantime three other men became sick. The command was moved into camp on the 21st, about 2 miles away from the barrack buildings. One case occurred on the 23d, but after that date there was no further development of the disease. Of the five cases which occurred two were fatal.

According to Dr. Gorgas:

Depopulation of the affected section, as has been so often proved before, was at once and entirely successful. Strict isolation of the hospital and the sick and a good system of separation of the camp from the post was adopted. Personally, I am only in favor of these measures to a limited extent, in a garrison, against yellow fever. Depopulation is the all-important step. The fear of yellow fever is so great through all this country (much greater than of any of the other epidemic diseases) that I think keeping up of the morale of the people is more important than the slight service intra-garrison quarantines do. It can not fail to have a depressing effect upon all concerned to see the sick and their attendants avoided and looked upon with such dread and the dead carted away at night and buried without ceremony. The risk is so small that I would have less of this grewsome business. Experience has taught that if you depopulate you can be pretty liberal in your communication with your camp and run little risk of infecting it.

TYPHOID FEVER.

One hundred and fifty-nine cases of typhoid fever were reported during the year, only 9 of which were fatal. Fort Custer, Mont., had 26 cases; Fort Bliss, Tex., 14; Fort Sill, Okla., 9; 14 cases occurred among troops in the field, and the remaining cases were scattered among 42 different military stations. Samples of blood from these cases were forwarded by medical officers to this office for a determination of the action of the serum on pure cultures of typhoid bacilli as an aid in diagnosis, the work of the previous year, as summarized on pages 68-73 of my last annual report, having established a feeling of confidence in the Widal test as an evidence of the presence of typhoid infection.

PNEUMONIA.

Eighty-one cases of pneumonia were reported during the year, resulting in 6 deaths and 2 discharges. The largest number at any one post was 9 at Fort Douglas, Utah; 8 at Fort Monroe, Va., and 6 at Fort Meade, S. Dak. The remaining 58 cases were reported from 33 different posts.

MALARIAL DISEASES.

The rate of admission for malarial diseases was 78.88 per thousand of strength, as compared with 83.08 in the previous year, and 92.82, the average annual rate of the previous decade. The rate for the white troops was 85.79, and for the colored troops only 4.62. The latter rate is unusually low. In 1896 it was 16.63, but the annual rate for the previous ten years, 64.50, was only slightly lower than the rate of the white troops. Washington Barracks, D. C., and Fort Myer, Va., continue to rank as the posts having the largest prevalence of malarial fevers. The former had 576.27, the latter 537.37 admissions per thousand of strength. Fort Logan H. Roots took third place on the list of malarial prevalence, with a rate of 485.07. Fort Barrancas, Fla., had the largest rate of constant sickness from these fevers, 11.72 men constantly sick, although standing fourth on the list of prevalence. The constant malarial sickness at Fort Myer was 9.25, at Washington Barracks 7.34, and at Fort Logan H. Roots 5.70, as compared with 1.63, the average rate of the Army.

RHEUMATIC AFFECTIONS.

The admission rate for these affections was 65.12 and the constant sickness 2.63, as compared with 59.68 and 2.50 during the previous year and 76.94 and 3.71 during the years of the previous decade. The colored men suffered more than the white troops, their rates for the year being 100.74 and 3.46, as compared with 61.80 and 2.55 among the white soldiers. The post having the largest admission rate, 226.67, was Rock Island Arsenal, Ill., with a constant sickness of 6.54. The post having the largest nonefficiency, 9.30, was Fort Keogh, Mont., which stood second on the list of prevalence with 183.67 admissions per thousand of strength. Other posts having relatively high rates were Fort Douglas, Utah; Fort D. A. Russell, Wyo.; Fort Robinson, Nebr.; Fort Wingate, N. Mex.; Fort Clark, Tex., and Jackson Barracks, La.

DIARRHEAL DISEASES.

The admission rate for the year was 73.77 per thousand of strength, as against 80.02 in the previous year and 113.65, the average of the years of the preceding decade. The rate for the colored troops was somewhat lower than the average of the Army. The highest admission rates were reported from Fort Clark, Tex., Fort Huachuca, Ariz., and Fort Preble, Me., 297.59, 274.58, and 200, respectively. The highest rate of constant sickness, 3.17, was given by the last-named post, Fort Huachuca being second on the list, with 2.93, and St. Francis Barracks, Fla., third, with 2.51. The average duration of acute diarrheal cases was 2.94 days. The total number of cases of dysentery treated was 52, with an average duration of seventeen days; no case fatal.

Two instances of wholesale poisoning, apparently by carelessness in the cleaning of kitchen utensils, have been reported to this office. One occurred at St. Francis Barracks, Fla., September 19, 1897. All the members of Battery C, First Artillery, partook of ice cream for supper at 5.30 p. m. About 10 p. m. some of the men became suddenly and violently ill with nausea, vomiting, cramps, and purging, attended with a slight rise in temperature and extreme prostration. Before morning over 30 members of the mess, including some soldiers belonging to the band and some civilian attachés who had partaken of the ice cream, became similarly affected. Brisk purgatives were given as soon as each case came under observation. The alimentary symptoms subsided after a few hours and were succeeded by a marked rise in temperature, varying from 100° to 104° F., severe headache, and, in some cases, which in the

severe cases became weak and irregular. These acute symptoms subsided at the end of forty-eight hours. The only treatment given after the purge was phenacetin .650, with in some cases 15 c. c. of brandy. The condition of some of the cases was such as to cause grave apprehension for a time. The ice cream was prepared by the battery cooks and the harmful results were attributed by Capt. Frank J. Ives, who reported them, to an imperfect cleansing of the freezer after its previous use. Burnett's extract of vanilla, obtained from the Subsistence Department, was used in the flavoring of the cream.

The other instance, reported from Fort Walla Walla, Wash., by Acting Asst. Surg. J. E. Bingham, occurred July 28, 1898. Breakfast was served as usual about 6 a. m. The first man affected was taken sick within twenty minutes after eating, and shortly afterwards 42 men belonging to Troop A, Fourth Cavalry, became affected with choleraic symptoms. The medical officer considered the symptoms due to the hash, of which all had partaken.

VENEREAL DISEASES.

The admissions for venereal diseases during the year were equivalent to 84.59 cases in every thousand of the strength present, as compared with 78.08 in 1896 and with 76.32, the average of the preceding decade. The rate of constant sickness, 5.65 per thousand men, also was slightly in excess of the usual rate. The annual rate for 1896 and the average annual rate for the ten years preceding were identical—5.26 per thousand of strength. The rates for the colored troops, 114.60 admissions, with 6.88 of nonefficiency, were higher than the average rates of the Army as stated above, in this differing very considerably from their rates of the previous year—56.53 admissions, with 3.18 of nonefficiency. The army admission rate for syphilis was 12.04, with 1.20 constantly sick; for gonorrhea 52.09, with 3.15 constantly sick; for chancroids and other nonspecific venereal cases 20.46, with 1.30 constantly sick. Cases of syphilis had an average duration of 36.46 days under treatment; gonorrhea 22.09 days, and other venereal cases 22.82 days. Four posts had their admission rates over 200 per thousand of strength. These were Fort Douglas, Utah; Fort Logan H. Roots, Ark.; Jackson Barracks, La.; and Fort McIntosh, Tex. The nonefficiency depended on the relative proportion of syphilitic cases. At Fort Brown, Tex., where the nonefficiency was highest—19.81 per thousand of strength—each case was under treatment an average of 42.64 days. Fort Douglas, with the relatively largest number of admissions, had only 11.98 constantly sick, each case having been under treatment an average of 32.62 days.

ALCOHOLISM.

The admission rate caused by alcoholism during the year 1897 was 27.86, an improvement over the rate (29.06) of the previous year, and notably so over 38.69, the average annual rate of the previous ten years. Two men died during the year from the direct effects of alcoholic excesses, as compared with 7 fatalities of the kind in 1896. As heretofore, the rate among the colored troops was much lower than among the white soldiers—4.62 admissions, compared with 30.02. Fort Warren, Mass., this year, as last year, headed the list of posts having high rates, but its rate this year was only 105.16, as compared with 152.67 in 1896. Fort Sherman, Idaho, had a rate of 100. All the other posts had lower rates, and some large posts, such as Fort Robinson, Nebr., with an average strength of 404 men, had no entry on sick report for intoxication during the year.

INJURIES.

The admission rate for injuries was 290.08 per thousand of strength, with 9.12 of constant disability. This is a slight increase over the rates of 1896, 279.75, with 8.73 of nonefficiency, and over the average annual rate of the previous decade, 252.67, with 8.64 of nonefficiency. Accidents in the gymnasium and in athletic contests are believed to have been the cause of this increase in the relative number of admissions. Contusions and sprains caused 151.40 of the 290.08 admissions for injury; wounds not gunshot, 49.69, and gunshot wounds only 2.44.

Fifty-four deaths and 55 discharges for disability were occasioned by injury during the year. Nineteen of the deaths were occasioned by gunshot wounds, 17 by drowning, 4 each by crushing and fractures, 3 by freezing, 2 by insolation, and 4 by other injuries. Inguinal hernia was the cause of 17 of the discharges; contusions, sprains, and muscular strains caused 13; gunshot wounds, 6; fractures, 5; frostbites, 2, and other injuries, 12.

Ten cases of suicide were reported, as compared with 19 during the previous year. The largest number at any one post was 2—at Plattsburg Barracks, N. Y. Two occurred in the month of February and 1 in each of the following months: March, April, May, July, August, October, and December. Seven of the deaths resulted from wounds, 1 from leaping from a window, and 4 from morphine poisoning. In 4 cases the cause was reported as unknown, in 3 despondency from drink, 1 delirium, 1 to escape punishment for forgery, and 1 despondency on account of the suicide of a friend.

Seven of the suicides were enlisted men of the infantry, 1 of the cavalry, 1 of the recruiting service, and 1 of the Subsistence Department. One was under 25 years of age; 4, 25 to 34; 2 35 to 44 years, and 3 over 45. One had one year's service, 1 four years, 1 six years, 1 nine years, 4 twelve years, and 2 over 20 years. Seven were natives of the United States, 2 Irish, and 1 German.

CIVILIANS ATTACHED TO THE ARMY.

The civilian attachés of the Army comprise the families of officers and enlisted men, servants, employees of the various departments and their families, and all persons not in the personnel of the Army who are allowed to reside at military stations or to accompany military commands. The average number of these present during the present year was: Adult males, 2,178; adult females, 5,710; children, 5,968; total, 13,586. The deaths that occurred among them are shown in the following statement:

Disease.	Adult males.	Adult females.	Children.	Total.
Infectious	3	8	15	26
General nutrition		3	2	5
Nervous system	1	2	3	6
Digestive system	2	3	7	12
Circulatory system	2	2	1	5
Respiratory system		6	16	22
Genito-urinary system		6	1	7
Total from disease	8	30	45	83
Total from injury	2	4	9	15
Unknown		1		1
Total from all causes	10	35	54	99

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REPORT OF THE SECRETARY OF WAR.

577

TABLE I.—Numerical view of the effects of disease and injury on the Army during the calendar year 1897, as compared with the corresponding data for 1896 and for the decade 1886-1895.

United States Army.	White.	Colored.	Total.
Average strength shown—			
By returns of Adjutant-General	a 25,165	a 2,209	a 27,374
By reports of Medical Department	b 23,253	b 2,164	b 25,417
Total admissions to sick report	27,458	2,702	30,160
Per 1,000 of mean strength	1,180.84	1,248.61	1,186.61
Per 1,000 for previous year	1,132.49	968.88	1,110.39
Per 1,000 for preceding decade	1,254.15	1,313.43	1,258.89
Admissions for disease	20,713	2,074	22,787
Per 1,000 of mean strength	890.77	958.41	896.53
Per 1,000 for previous year	849.05	629.45	830.65
Per 1,000 for preceding decade	1,005.77	1,022.31	1,006.22
Admissions for injury	6,745	628	7,373
Per 1,000 of mean strength	290.07	290.20	290.08
Per 1,000 for previous year	283.44	239.43	279.75
Per 1,000 for preceding decade	248.38	291.13	252.67
Admissions treated in quarters	9,899	1,030	10,929
Per 1,000 of mean strength	425.71	475.97	429.99
Admissions treated in hospital	16,388	1,555	17,943
Per 1,000 of mean strength	704.77	718.58	705.94
Admissions treated in the field	1,171	117	1,288
Per 1,000 of mean strength	50.36	54.07	50.68
Number constantly noneffective	830.57	80.50	911.16
Per 1,000 of mean strength	35.72	37.24	35.85
Per 1,000 for previous year	34.72	25.75	33.97
Per 1,000 for preceding decade	40.34	38.92	40.26
Noneffective for disease	619.58	59.76	679.54
Per 1,000 of mean strength	26.65	27.61	26.73
Per 1,000 for previous year	25.87	18.35	25.23
Per 1,000 for preceding decade	31.80	29.53	31.62
Noneffective for injury	210.99	20.83	231.82
Per 1,000 of mean strength	9.07	9.68	9.12
Per 1,000 for previous year	8.86	7.40	8.73
Per 1,000 for preceding decade	8.54	9.39	8.64
Days lost on account of sickness	303,159	29,414	332,573
For each man of Army	13.04	13.59	13.08
For each man, previous year	12.71	9.43	12.43
For each man, preceding decade	14.69	14.18	14.64
Average days each case was treated	11.04	10.89	11.03
For previous year	11.22	10.84	11.19
For preceding decade	11.70	10.96	11.63
Average days' treatment for patients returned to duty	9.54	9.75	9.56
Average days' treatment for patients discharged for disability	96.08	80.76	94.86
Average days' treatment for patients who died	23.57	30.69	24.24
Discharges for disability, all causes	242	21	263
Per 1,000 of mean strength	9.62	9.51	9.61
Per 1,000 for previous year	10.13	10.43	10.15
Per 1,000 for preceding decade	19.72	19.97	19.78
Discharges for disease	191	17	208
Per 1,000 of mean strength	7.59	7.70	7.60
Per 1,000 for previous year	8.05	9.07	8.13
Per 1,000 for preceding decade	16.34	16.48	16.39
Discharges for injury	51	4	55
Per 1,000 of mean strength	2.03	1.81	2.01
Per 1,000 for previous year	2.08	1.36	2.02
Per 1,000 for preceding decade	3.39	3.49	3.39
Deaths from all causes	127	13	140
Per 1,000 of mean strength	5.05	5.89	5.11
Per 1,000 for previous year	5.28	7.25	5.44
Per 1,000 for preceding decade	7.12	8.45	7.32
Deaths from disease	80	6	86
Per 1,000 of mean strength	3.18	2.72	3.14
Per 1,000 for previous year	3.76	4.53	3.83
Per 1,000 for preceding decade	4.84	6.05	4.99
Deaths from injury	47	7	54
Per 1,000 of mean strength	1.87	3.17	1.97
Per 1,000 for previous year	1.52	2.72	1.62
Per 1,000 for preceding decade	2.28	2.40	2.33

a Used in computing the ratios of discharges and deaths for the Army.

b Used in computing all ratios for the Army except those of discharges and death.

TABLE XX.—Average height, weight, and chest measure of 9,226 recruits accepted.

Age.	Whole number accepted.					Average height (in inches).				
	White.				Total white and colored.	White.				Total white and colored.
	Na- tive.	For- eign born.	Total.	Col- ored.		Na- tive.	For- eign born.	Total.	Col- ored.	
16.....	8		8	1	9	66.53		66.53	63.25	66.17
17.....	19		19	1	20	66.64		66.64	64.75	66.55
18.....	1		1		1	64.00		64.00		64.00
19.....	8		8		8	68.25		68.25		68.25
Under 20 (average, 17.2).....	36		36	2	38	66.90		66.90	64.00	66.75
20.....	7		7		7	68.79		68.79		68.79
21.....	1,556	167	1,723	99	1,822	67.75	67.04	67.68	67.34	67.66
22.....	642	112	754	53	807	67.66	67.13	67.59	67.26	67.56
23.....	516	81	597	40	637	67.90	67.54	67.85	67.30	67.82
24.....	522	167	689	59	748	67.94	67.37	67.80	67.54	67.78
20 to 24 (average, 22.1).....	3,243	527	3,770	251	4,021	67.79	67.24	67.71	67.37	67.69
25.....	434	156	590	53	643	67.69	67.12	67.54	67.80	67.56
26.....	431	164	595	63	658	67.93	67.26	67.74	67.79	67.75
27.....	319	157	476	58	534	67.95	67.49	67.80	67.35	67.75
28.....	202	110	372	37	409	67.50	67.98	67.63	67.91	67.67
29.....	209	93	302	35	337	67.77	67.20	67.60	67.94	67.63
25 to 29 (average, 26.7).....	1,655	680	2,335	246	2,581	67.78	67.39	67.67	67.73	67.67
30.....	134	108	242	21	263	67.68	67.31	67.52	67.45	67.51
31.....	129	115	244	37	281	67.59	67.40	67.50	67.70	67.53
32.....	94	92	186	31	217	67.79	66.99	67.39	67.81	67.45
33.....	68	80	148	8	156	67.60	67.12	67.34	67.50	67.35
34.....	82	84	166	15	181	67.71	66.93	67.31	67.67	67.34
30 to 34 (average, 31.7).....	507	479	986	112	1,098	67.67	67.17	67.43	67.67	67.45
35.....	78	68	146	18	164	67.96	67.34	67.68	67.35	67.64
36.....	52	71	123	22	145	67.48	67.07	67.25	67.34	67.26
37.....	71	86	157	22	179	62.51	66.96	67.21	67.32	67.22
38.....	67	59	126	16	142	67.98	67.37	67.70	67.00	67.62
39.....	37	52	89	16	105	67.73	67.58	67.64	68.11	67.71
35 to 39 (average, 36.8).....	305	336	641	94	735	67.75	67.23	67.48	67.41	67.47
40 to 49 (average, 43.8).....	267	278	545	71	616	67.42	66.81	67.11	67.75	67.18
50 and over (average, 52.5).....	49	71	120	17	137	66.92	66.63	66.75	67.76	66.88
16 and over (average, 27.6).....	6,062	2,371	8,433	793	9,226	67.75	67.20	67.59	67.56	67.59

during the year 1897 (native white, 6,062; foreign-born white, 2,371; colored, 793).

Average weight (in pounds).					Average chest measure (in inches).									
White.			Colored.	Total white and colored.	White.						Colored.		Total white and colored.	
Na-tive.	For-eign born.	Total.			Native.		Foreign born.		Total.					
					Ex-pira-tion.	In-spira-tion.	Ex-pira-tion.	In-spira-tion.	Ex-pira-tion.	In-spira-tion.	Ex-pira-tion.	In-spira-tion.	Ex-pira-tion.	In-spira-tion.
122.75	.....	122.75	125.00	123.00	30.56	33.44	.....	.....	30.56	33.44	31.75	34.00	30.69	33.50
128.32	.....	128.32	137.00	128.75	31.70	34.58	.....	.....	31.70	34.58	32.00	34.50	31.71	34.58
125.00	.....	125.00	.....	125.00	32.00	34.50	.....	.....	32.00	34.50	.....	.....	32.00	34.50
141.25	.....	141.25	.....	141.25	32.03	35.31	.....	.....	32.03	35.31	.....	.....	32.03	35.31
129.86	.....	129.86	131.00	129.92	31.53	34.49	.....	.....	31.53	34.49	31.88	34.25	31.55	34.48
143.71	.....	143.71	.....	143.71	32.43	35.43	.....	.....	32.43	35.43	.....	.....	32.43	35.43
143.05	141.60	142.91	145.26	143.04	33.82	36.80	33.96	36.82	33.83	36.80	33.72	36.50	33.83	36.79
144.33	143.82	144.25	146.75	144.42	34.05	37.07	34.24	37.29	34.08	37.11	33.64	36.36	34.05	37.06
145.48	144.30	145.32	148.08	145.49	34.19	37.19	34.35	37.33	34.21	37.21	33.90	36.95	34.19	37.19
146.86	146.80	146.85	149.32	147.04	34.22	37.27	34.61	37.69	34.31	37.39	33.90	36.56	34.28	37.31
144.30	144.14	144.28	146.98	144.45	33.92	36.99	34.29	37.27	34.04	37.03	33.77	36.56	34.01	37.00
145.50	146.38	145.73	147.87	145.19	34.22	37.26	34.66	37.71	34.33	37.39	34.01	36.66	34.31	37.32
148.30	146.24	147.73	148.92	147.85	34.34	37.40	34.58	37.55	34.40	37.43	34.14	36.91	34.38	37.39
147.55	148.31	147.80	150.43	148.09	34.46	37.42	34.86	37.94	34.59	37.59	34.24	37.05	34.55	37.53
147.52	145.78	146.99	151.64	147.40	34.52	37.57	34.83	37.80	34.61	37.64	34.56	37.42	34.60	37.62
149.10	149.63	149.26	151.71	149.52	34.51	37.60	34.77	37.88	34.59	37.68	34.33	37.07	34.57	37.62
147.40	147.13	147.32	149.85	147.56	34.32	37.42	34.73	37.76	34.48	37.52	34.22	36.99	34.46	37.51
150.09	147.28	148.83	149.62	148.90	34.60	37.65	34.84	37.88	34.71	37.75	34.24	36.81	34.67	37.67
147.77	150.79	149.19	155.81	150.06	34.50	37.48	35.00	38.12	34.74	37.79	34.97	37.47	34.77	37.74
150.83	146.00	148.44	160.13	150.11	34.69	37.80	34.83	37.72	34.76	37.76	35.31	37.97	34.84	37.97
148.59	148.06	148.30	151.25	148.46	34.46	37.47	34.69	37.83	34.59	37.67	34.69	37.19	34.60	37.64
154.12	146.88	150.10	153.27	150.36	35.09	38.03	34.82	37.82	34.96	37.92	34.67	37.07	34.93	37.85
150.09	147.81	148.98	155.18	149.61	34.65	37.67	34.85	37.89	34.75	37.78	34.87	37.41	34.76	37.74
156.97	152.50	154.93	151.22	154.52	35.20	38.20	35.46	38.45	35.32	38.31	34.33	37.03	35.20	38.17
151.13	148.80	149.79	146.00	149.21	34.74	37.90	34.88	37.80	34.82	37.84	34.43	37.00	34.81	37.71
151.51	147.10	149.08	144.50	148.52	34.77	37.69	34.93	37.96	34.86	37.84	34.50	37.38	34.82	37.80
155.61	149.49	152.75	161.50	153.73	35.29	38.13	36.15	38.94	35.71	38.50	35.13	37.91	35.64	38.44
150.57	148.87	149.57	156.56	150.64	35.00	37.99	34.79	37.70	34.88	37.82	34.89	37.72	34.88	37.81
153.64	149.26	151.34	151.09	151.31	35.02	37.92	35.21	38.16	35.13	38.08	34.63	37.37	35.06	37.99
153.27	151.79	152.52	154.13	152.70	35.33	38.19	35.48	38.06	35.41	38.26	34.82	37.59	35.34	38.18
151.25	150.49	150.80	154.47	151.26	34.85	37.41	35.54	38.25	35.22	37.90	35.07	37.54	35.12	37.86
146.47	147.55	146.77	150.28	147.07	34.25	37.26	34.84	37.81	34.42	37.53	34.28	37.01	34.42	37.38

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THE WORK OF THE MEDICAL DEPARTMENT DURING THE SPANISH WAR.

The annual report of the Surgeon-General, rendered usually late in September, presents the medical and surgical statistics of the Army for the previous calendar year, the financial statements of the Surgeon-General's Office for the previous fiscal year, and those subjects of interest or importance in sanitary administration that have been under consideration up to the date of the report. The medical and surgical statistics of the calendar year 1897 and the financial transactions of the office for the fiscal year ended June 30, 1898, have been submitted above; but I find it impossible at the present time to present a full and complete discussion of the important events of recent occurrence in which the Medical Department has been concerned. This can not be done until the reports from the various regiments and field and general hospitals have been gathered in, tabulated, and studied. I purpose, however, giving a general view of the salient points of these occurrences and of the work of the Medical Department of the Army in connection therewith.

MEDICAL OFFICERS.

The number of medical officers, 192, allowed by law to the Army is inadequate in time of peace. This number includes the additional 15 assistant surgeons authorized by the act approved May 12, 1898. Later in May there were 13 vacancies; 6 officers were engaged in administrative duties in the office of the Surgeon-General and in the superintendence of the library and the Army Medical Museum, 11 were on duty at medical supply depots and as chief surgeons of military departments, 1 at the United States Soldiers' Home, Washington, D. C.; 56 at general hospitals and at garrisoned posts, 1 as colonel of a volunteer regiment, while 4 were disabled. One hundred officers were thus left for field service, 5 of whom were placed on duty as chief surgeons of Army corps, 36 as brigade surgeons of volunteers, and 59 as regimental surgeons and assistants with the regular troops. The insufficiency of the last-mentioned number was made up by the assignment of medical men under contract.

All volunteer regiments had 3 medical officers appointed by the governors of States. Volunteer surgeons to fill the staff positions authorized by the act approved April 22, 1898, were appointed by the President: Eight corps surgeons with the rank of lieutenant-colonel and 110 division and brigade surgeons with the rank of major; 5 of the former and 36 of the latter positions were filled as indicated above by the appointment of officers of the Army Medical Department. The President also appointed 3 medical officers for each of the regiments of United States volunteer infantry, cavalry, and engineers. The very small proportion of medical officers having experience of a military character impaired the efficiency of the department at the outset, but many of the staff surgeons from civil life showed great aptitude for the service, and speedily became of value as administrative and sanitary officers.

The large number of sick which had to be cared for during the progress of the war in regimental, division, and general hospitals rendered imperative the employment of additional medical assistance. Under the provisions of the act approved May 12, 1898, the services

of over 650 contract surgeons were engaged. Most of these doctors from civil life did good service. Many of them were thoroughly well equipped physicians and surgeons, with ample hospital experience, but it was impossible to make a careful selection owing to the great pressure of business in this office. Since it was impracticable to have the qualifications of each passed upon by an examining board, I endeavored as far as possible to obtain satisfactory professional indorsement before authorizing the contract.

HOSPITAL CORPS.

On April 25, 1898, in connection with the call of the President of the United States for 125,000 volunteers, I recommended that the law restricting the number of hospital stewards to 100 (see p. 14) be changed, and that for each regiment of volunteer infantry or cavalry there should be enlisted 1 hospital steward, 1 acting hospital steward, and 25 privates; for each battery of artillery 1 hospital steward and 5 privates, and for each division of the Army 1 hospital steward, 1 acting hospital steward, and 50 privates, to serve under the direction of the chief surgeon of the division. These recommendations were acted upon so far favorably that by the act approved June 2, 1898, Congress suspended during the existing war all provisions of law limiting the number of hospital stewards at any one time to 100, and requiring that a person to be appointed a hospital steward shall first demonstrate his fitness therefor by actual service of not less than twelve months as acting hospital steward, provided that the increase of hospital stewards under this act shall not exceed 100. In addition to the 200 stewards thus authorized, each volunteer organization received into the service was allowed 1 hospital steward for each battalion (act approved April 26, 1898). There was, however, no provision made for Hospital Corps men for the volunteer troops except that which empowered the Secretary of War (act March 1, 1897) to enlist as many privates of the Hospital Corps as the service may require.

To provide this corps with the necessary number of men recruiting officers were urged to secure suitable men and medical officers to effect the transfer of men from the line of the Army. Letters were sent to superintendents of training schools for male nurses in the prominent cities advising them of the need for desirable men and asking their assistance in securing unemployed nurses. A number of medical students, pharmacists, and young graduates in medicine enlisted in the Hospital Corps for service during the war, and it is believed that the efficiency of the corps was thereby raised considerably.

Recommendation was made May 14, 1898, that mustering officers be instructed to enlist desirable men approved by medical officers at the rate of 5 for each battalion, and subsequently that these be permitted to accompany the regiments on their future service. This recommendation was reiterated June 18 in a communication to the Adjutant-General. Meanwhile General Orders, No. 58, Headquarters of the Army, Adjutant-General's Office, May 31, 1898, authorized the transfer of men from the line of the volunteers to the Hospital Corps of the Regular Army, upon the recommendation of the chief surgeon, and suspended the provisions of Army Regulations governing the Hospital Corps so far as they were inapplicable in time of war and with troops in the field. Commanders of corps and of independent divisions and brigades were charged with the full control of the transfer from the line, the enlistment and discharge of members of the Hospital Corps, the detail of acting hospital stewards, and the

appointment of stewards, the last limited by subsequent orders to 10 stewards for an Army Corps in addition to those authorized for the volunteer regiments. Authority for immediate enlistments, without reference to this office except in cases where slight defects existed, was also given to a number of chief surgeons.

The number of men enlisted and transferred was approximately 6 000

CONTRACT NURSES.

The want of a sufficient body of trained Hospital Corps men necessitated the detail of enlisted men from the regiments for hospital duty in several of the camps and the employment of trained nurses at the general hospitals. Foreseeing the necessity for a large force of the latter, I applied to Congress April 28, 1898, for authority to employ by contract as many nurses as might be required during the war, at the rate of \$30 per month and a ration, the pay proper to be paid from the appropriation for the Medical and Hospital Department. This was promptly granted. About the same time the National Society of the Daughters of the American Revolution offered its services as an examining board for female nurses, and a committee, of which Dr. Anita Newcomb McGee was chairman, was designated to take charge of the work. Thereafter most of the female nurses employed were selected by this committee, with the exception of those immune to yellow fever, who were recruited in New Orleans and other Southern cities, and a few who were enrolled at Montauk Point, Long Island, and Jacksonville, Fla., by the chief surgeons at these places. A number of patriotic societies offered to provide the hospitals with nurses, but the committee referred to answered its purpose so well that I did not feel the need of additional assistance, and was relieved from what would otherwise have been a serious responsibility.

Over 1,700 female nurses have been employed, at first at the general hospitals and later at the field division hospitals, when it became evident that the field service purposes for which the latter had been organized would have to give place to the imperative need of caring for the many sick men coming from the regimental camps. These hospitals ceased to be ambulance hospitals and their character of fixed field hospitals was promptly recognized by assigning contract surgeons and nurses to duty with them and providing them with articles of equipment which can not be carried in the hospital wagons of a marching command. Female nurses were not sent to these field hospitals until their original function as an essential adjunct to a command mobilized for active service became lost in the current of immediate necessities. Many of the trained nurses were Sisters of Charity, whose services were highly appreciated by medical officers in charge, as well as by the individual sick men, who benefited by their ministrations. Others were obtained through the kind assistance of the Red Cross Society for the Maintenance of Trained Nurses, Auxiliary No. 3, and I desire to express my high appreciation of the valuable services rendered to the Medical Department by this organization.

MEDICAL AND HOSPITAL SUPPLIES.

The authorized strength of the Army, April 1, 1898, was a little over 28,000, officers and men. This force was stationed as garrisons at military posts, and while the supplies furnished were more especially adapted to the medical wants of troops serving under such conditions,

there was ample provision for field service, especially at posts where active service against Indians or riot duty was possible. Further than this, it is believed the available medical supplies were sufficient for the then existing Army for any duty, though, necessarily, additions would have to be made in mobilizing for foreign service.

Up to the time that war was declared it was not practicable to take any immediate steps to obtain supplies, as it was not known until that date that the troops would actually be called out, nor were there funds available from which to make purchases. But already, before April 1, in view of the possibility of future needs, orders were given to have the field medical outfits, medical and surgical chests, instruments, etc., at the supply depots put in order for issue in case of need, and early in March the preparation of new pattern medical and surgical chests was begun so as to have them ready for manufacture should the necessity arise.

Immediately upon the declaration of war, April 21, steps were taken to obtain medical supplies for the new Volunteer Army. For the more important articles, and those of highest cost, bids were invited at short notice, such, for instance, as medical and surgical chests, litters and slings, field operating cases, pocket cases, orderly and hospital corps pouches, etc. Orders were given and the manufacture expedited with the utmost dispatch. Requests for proposals for the usual spring purchases had been made in March, but to obtain medicines and other additional supplies, in view of a state of war, advantage was taken of the authority granted by act of Congress and purchases were made in open market, the interests of the Government being guarded by obtaining informal bids when the amount was large and time permitted.

On May 3, foreseeing that it would be impossible to have ready for issue to the volunteer regiments, as soon as they were mustered in, the medical and surgical chests above referred to, as well as other articles of field equipment, although their preparation was pushed with the utmost dispatch, I telegraphed the governors of the several States for authority to utilize the medical equipment of the National Guard in the service of the State Volunteers until our army medical supplies were ready for issue.

Most of the governors of the States who had field equipment responded promptly and satisfactorily, but, unfortunately, many of the State medical departments had no such equipment. These deficiencies were supplied by the issue of the advance field regimental outfits referred to hereafter. Most of the State field medical equipment so loaned has been, or probably will be, eventually paid for by the United States.

Meanwhile the officers in charge of the medical supply depots in New York and St. Louis were directed to make arrangements so that supplies could be immediately obtained for 100,000 men for six months.

As the supply table published in 1896 was prepared for garrison use in time of peace and was inappropriate for the use of troops in the field, a field supply table was prepared and approved by the Secretary of War May 9, 1898. This supply table specifies the contents of the medical and surgical chests, the hospital corps and orderly pouches, field operating, surgeons' field and pocket cases, mess chest, food chest, and field desk, and gives the allowance of medicines and disinfectants, hospital stores, stationery, furniture, bedding, clothing, and miscellaneous articles for field hospitals and ambulance trains. It was intended to provide for the needs of commands in

active service where only a limited supply of articles could be carried owing to the necessity of restricting transportation. But as soon as it was evident that the troops were likely to be retained in camps of instruction, notification was given that articles on the regular supply table could also be obtained. On August 12, in Circular No. 6, from this office, I again called attention to this subject, directing chief surgeons of army corps, of divisions, and of smaller commands to make timely requisition for supplies, by telegraph if necessary, and to see that field hospitals in which typhoid fever and other serious cases were treated were liberally supplied with all articles necessary for the treatment and comfort of the sick.

The patterns of the new medical and surgical chests were prepared in this office under my immediate supervision, and the chests for issue were put up at the Army Medical Museum in this city. This was done to insure satisfactory workmanship and prompt delivery.

New patterns for the field operating case had been already fixed upon in the fall of 1897.

New forms of surgical dressings especially designed for field use, composed of sterilized, sublimated, and iodoform gauze; sterilized gauze bandages, absorbent cotton, catgut, and silk, sterilized and packed in convenient envelopes; tow, compressed cotton sponges, and plaster of paris bandages were also prepared under the immediate supervision of this office. Samples of these were sent to the three supply depots, New York, St. Louis, and San Francisco, and all issues directed to be in conformity therewith. Forty boxes of these specially prepared dressings were put up at the temporary supply depot, Army Medical Museum, Washington, D. C., and sent to Tampa, Fla., for the use of the army about to sail for Cuba.

To provide temporarily for volunteer regiments organized and ordered to camps before the new medical and surgical chests were ready for issue, supplies of medicines, instruments, hospital stores, stationery, and miscellaneous articles, according to a prescribed list and packed in convenient boxes, were prepared at the supply depots.

An important article to be provided was the first-aid packet, containing antiseptic dressings for immediate use in emergencies and intended to be carried by each individual soldier. These were promptly and liberally supplied.

Whenever notice was received from the Adjutant-General's Office that commands were to be moved or camps formed, I endeavored to anticipate the wants of the troops by telegraphing the officer in charge of the nearest supply depot to forward supplies for the stated number of men according to the field supply table.

Requests from medical officers for supplies and orders based thereon transmitted to the supply depots were largely by telegraph, and orders were given that when the supplies were needed promptly they should be forwarded by express to their destination. When a medical officer desired to purchase medical and other supplies for use in emergencies authority to do so was always granted.

Extensive purchases of medical supplies were made direct from this office from dealers in Washington, Baltimore, and Philadelphia to provide for the immediate wants of the troops at Camp Alger, Va., and the general hospitals at Fort Myer, Va., Washington Barracks, D. C., and Fort Monroe, Va. This was done not only to meet with promptness the urgent needs of troops and hospitals in this vicinity but to relieve somewhat the great pressure upon the supply depot at New York.

In addition to the field-supply table issued May 9, 1898, a revised edition of the Manual for the Medical Department was published. These, together with 2,400 copies of a revised edition of Lieutenant-Colonel Smart's handbook for the Hospital Corps, were freely distributed throughout the Army, so that medical officers might become acquainted with the proper mode of obtaining supplies and their many other important duties.

It is impossible to give a full list of the medical supplies that were provided, no complete report of purchases having as yet been received from the medical-supply depots, but the following will give an idea of the amounts of some of the principal articles:

First-aid packets.....	number.....	272,000
Hospital-corps pouches.....	do.....	5,797
Orderly pouches.....	do.....	509
Pocket cases.....	do.....	962
Surgeons' field cases.....	do.....	369
Field operating cases.....	do.....	328
Medical and surgical chests.....	do.....	1,204
Litters.....	do.....	2,259
Litter slings.....	do.....	7,600
Cots and bedsteads, with bedding.....	do.....	18,185
Blankets, gray.....	do.....	23,950
Field desks.....	do.....	440
Quinine pills.....	do.....	7,500,000
Chloroform and ether.....	bottles.....	13,220
Gauze, sublimated, 1-meter packages.....	packages.....	100,625
Gauze bandages, 3 sizes.....	number.....	331,776

The medical supply depot in New York, Lieut. Col. J. M. Brown in charge, supplied the posts in New England, the Middle States, and along the Atlantic coast, including Florida, and the troops that have been sent to and are now serving in Cuba and Porto Rico. Ordinarily requisitions received from officers serving in the localities mentioned were acted on and sent by the next mail to the depot for issue, but as already stated the telegraph and express companies were brought into use where the necessity called for prompt action.

The pressure on this depot was at times extremely great in supplying the troops sent to Cuba and Porto Rico and the large camps at Falls Church, Va.; Middletown, Pa.; Hempstead and Montauk Point, N. Y., and Jacksonville, Fernandina, and Miami, Fla.

On account of the urgency attending the establishment of Camp Wikoff the officer in charge of the New York supply depot was directed to honor all requisitions made by the chief surgeon at Montauk Point without referring them for approval of this office.

The medical supply depot at St. Louis, Mo., under the charge of Col. J. P. Wright, assistant surgeon-general, United States Army, supplied the States of the Mississippi Valley and region east of the Rocky Mountains, including Texas. The large camp at Chickamauga was supplied entirely from this depot, together with the camps formed at Knoxville, Tenn.; Lexington, Ky.; Anniston, Huntsville, and Mobile, Ala., and New Orleans, La. Many articles were sent from this depot to the supply officer at San Francisco, Cal., for the use of the Philippine expeditions. To provide for the large aggregation of troops at Camp George H. Thomas, Chickamauga, Ga., a subdepot, drawing its supplies from St. Louis, was organized and put under the charge of Maj. E. T. Comegys, surgeon, United States Army. This subdepot was discontinued on the departure of the troops from Camp Thomas. Owing to the distance of the camps at Lexington, Knoxville, Huntsville, and Anniston from this city the chief surgeons of these several

camps were authorized to draw upon the depot at St. Louis for any articles on the supply table without submitting requisitions in advance to this office.

The officers in charge of the depots at New York and St. Louis were directed, July 8, to keep in stock 1,000 iron beds or cots, with a full supply of bedding, ready for immediate issue.

The responsibility of supplying the posts on the Pacific coast and of outfitting the troops leaving for the Philippine Islands was placed upon Lieut. Col. J. V. D. Middleton, deputy surgeon-general, United States Army, in charge of the supply depot at San Francisco, Cal. As much delay and expense of transportation would have been incurred by sending supplies from Eastern depots to San Francisco, Colonel Middleton was authorized at discretion all necessary medicines, hospital stores, instruments, and miscellaneous supplies of every kind needed for the troops going to Manila. Articles of special manufacture, such as medical and surgical chests, litters, and litter slings, hospital-corps and orderly pouches, and the specially prepared field dressings already referred to, were shipped to San Francisco from St. Louis, not being obtainable on the Pacific coast. The distance of San Francisco from the center of the Government was so considerable that the officer in charge of that depot was necessarily given large discretion in the purchase of supplies and expenditure of funds. Lieutenant-Colonel Middleton deserves great credit for the efficient service rendered by him both as medical supply officer and as chief surgeon of the Department of California.

RAILROAD AMBULANCE TRAIN.

A railroad ambulance train was, in my opinion, essential to the well-being of the sick and wounded during transportation from Tampa, Fla., the probable base of operations against Cuba, to general hospitals in the interior. Accordingly, on May 30, 1898, I recommended the equipment of a train to consist of ten tourist sleepers and a dining car. This was approved, and on June 16 I was informed that a train of ten Pullman sleepers, a dining car, a private car, and a combination car was ready for service. The train was inspected by Maj. Charles Richard, surgeon, United States Army, who was placed in command. One assistant surgeon, 2 stewards, 20 privates of the Hospital Corps, and 3 civilian employees were assigned to him for service. The train was amply provided with all the medicines, hospital stores, and comforts required for the patients to be transported. The first trip made was from Washington, D. C., to Tampa, Fla., for the purpose of transporting sick from the latter place to the general hospital, Fort McPherson, Ga. Tampa was reached June 19, and Fort McPherson June 22. Here the Pullman cars were exchanged for the tourist sleepers originally requested. The latter were much better adapted for hospital purposes on account of their general arrangement, better ventilation, and convenience for cleanliness and the handling of patients. They had 134 lower and 136 upper berths, giving a total carrying capacity of 270. It was impracticable, however, to use the upper berths for on account of the impossibility of giving proper care to such patients occupying them.

Several trips were made between which great delay, involving inconvenience, and discomfort and even h

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the difficulty of obtaining a prompt response from local quartermasters to requisitions for the necessary transportation. On one occasion, after a delay of twenty-four hours, telegraphic communication with Washington had to be established before a movement was made. However, on July 4, Capt. H. R. Stiles, assistant surgeon, United States Army, on duty with the train, was appointed an acting assistant quartermaster, with authority to issue transportation requests. Major Richard reported of this:

Not only has this change given me more time to attend to the more important functions of my charge, and has avoided many vexatious delays, but it has enabled me to come in direct communication with the railroads and a better understanding is reached regarding speed, routes and care of train en route, all of which factors should be considered in a service which has for its object the comfortable and rapid transportation of the sick and wounded.

On July 9 the hospital train met the transport *Cherokee* at Port Tampa, Fla., on her return from Santiago with 323 sick and wounded; removed 87 that same night to the hospital on Tampa Heights, and on the following day left for Atlanta with 235 patients. This number, together with the Hospital Corps detachment and civilians, taxed the capacity of the train to its utmost, especially in the way of serving meals, but all wants were fully supplied. During this trip, while the engine was taking on water, the hospital train was struck in the rear by a passenger train. A caboose on the rear of the train was completely shattered; the private car used by the medical officers was so badly injured as to necessitate its abandonment, and many of the platforms were splintered, while the sick and wounded were severely shaken up by the collision, but fortunately no serious casualty resulted.

During the latter part of July excessive heat and dust rendered a trip from Tampa to Newport, Ky., extremely trying to the sick, and largely contributed to the fatal ending of two cases en route. A large proportion of the total number of cases transported were of typhoid fever, usually in the first week of the disease. Under certain circumstances the loading of the train at night was necessary, and in one instance loading was completed during a severe rain storm. Up to August 31 the hospital train had run about 17,500 miles and transported 1,935 patients with only four deaths.

Notwithstanding the large number of typhoid cases transported and the difficulty of handling such cases on this train, disinfection was so efficiently carried out that no case of this disease occurred among the personnel of the train. The utmost care was given to the disinfection of excreta to prevent any danger of the dissemination of the disease during the transportation of the sick.

HOSPITAL SHIPS.

The hospital ship Relief.—On April 15, 1898, I applied for a ship to be used as a hospital ship. After an inspection had been made of various ships offered I recommended, April 23, the purchase of the steamship *John Englis* as well adapted for the purpose in view—a floating hospital for the care of the sick and wounded at any point on the Cuban coast, for their transportation to any point on our own coast, and to act at the same time as a depot of reserve medical supplies for troops in the field. This recommendation was not approved at the time, and various other ships were inspected, but none found to be suitable. On May 18, by direction of the President, the *John Englis* was purchased, and the Quartermaster's Department took

charge of her to prepare her for the special service required. Maj. George H. Torney, surgeon, United States Army, was directed to make recommendations with reference to necessary alterations and apparatus, and was subsequently placed in command of the ship. The necessary work upon the vessel required much more time than was anticipated.

On June 12 I wrote to Major Torney:

The hospital ship will be required at the earliest possible moment to go to Santiago, where you are likely to have plenty of sick and wounded men awaiting your arrival. I trust that you will do everything in your power to have the ship ready for orders at the earliest possible moment. Be sure to get everything on board as soon as possible, for when you get your orders we want no delay on the ground that certain articles for which requisition has been made are not yet on board ship.

Again, on June 22, I wrote:

You will do everything in your power to expedite the work upon the hospital ship *Relief*, and when she is ready for sea report to me by telegraph. Upon receiving telegraphic orders to that effect you will proceed directly to Santiago de Cuba, reporting your arrival to the commanding general at that point. Your ship should be anchored in a safe harbor at such point as may be designated by the proper authorities, and as near as possible to the seat of active operations. You will receive on board up to the full capacity of the ship the sick and wounded of the Army and Navy and care for them exactly as if they were in a general hospital. The *Relief* is regarded as a United States general hospital, and you will be expected to make such reports and returns as are required by regulations for a general hospital. Your attention is especially invited to Army Regulations, 1433, and should anyone attempt to exercise unauthorized authority over you or your ship you will invite their attention to this regulation. When in your judgment or that of the commanding general or the chief surgeon of the troops at whatever point you may be located it is desirable that you should proceed to a home port for the purpose of landing the sick and wounded, you will, if practicable, communicate with me by telegraph, and orders will be sent you designating the port for which you should sail. If it is not practicable to communicate with me by telegraph you should apply to the commanding general of the troops for orders to proceed to such home port as may seem desirable, and immediately upon your arrival you should communicate with me by telegraph in order that arrangements may be made to transfer the sick and wounded to a general hospital. You will issue medical supplies upon properly approved requisitions to troops in the field, and will do everything in your power to aid the medical officers with these troops in providing for the comfort of the sick by the issue of ice, hospital stores, and such delicacies as you may have at your disposal. When practicable, you will send to me once a week a telegraphic report showing the number of patients of the Army and of the Navy on board the hospital ship. You should make timely requisition for necessary supplies for use on the ship and for issue to the troops in the field.

Further instructions were sent June 27:

You should keep in view the fact that the *Relief* is a well-equipped floating hospital and a depot of supplies for troops in the field. It is important, therefore, that she should not be taken away from the scene of active operations unless it is absolutely necessary for the purpose of landing the sick and wounded at a home port. You should avail yourself of every opportunity to send proper cases by the navy ambulance ship, the *Solace*, or by army transports returning to home ports. As a rule, the more serious cases of injury and sickness should be retained on your ship, as the disturbance incident to a sea voyage would be injurious to them. Convalescents and those sick and wounded who can be transported without injury to themselves, and who are not likely to be fit for duty within a short time, should be sent to a home port whenever an opportunity offers.

The *Relief* sailed from New York July 2 and arrived at Siboney on the 7th. She left Siboney July 19 with 254 sick and wounded and arrived at New York on the 23d. She sailed for Ponce, Porto Rico, August 3, and returned to New York on the 19th with 255 sick and wounded. The vessel made another trip to Ponce, Porto Rico, return-

ing with sick, September 6, to Philadelphia, whence she went to Montauk Point to transport sick to hospitals in Boston, Mass., and Philadelphia, Pa. Another trip to Porto Rico was then made, the vessel returning October 11 to Fort Monroe, Va.

The hospital ship Missouri.—On July 1, 1898, Mr. B. N. Baker, president of the Atlantic Transport Line, Baltimore, Md., tendered the steamship *Missouri*, with her captain and crew, to the Government as a hospital ship. This generous and patriotic offer was accepted by the Secretary of War, and Maj. W. H. Arthur, surgeon, United States Volunteers (assistant surgeon, United States Army), was ordered to take charge of her preparation for service and subsequently to command her. It was recognized that considerable refitting would be required before the vessel could be utilized. Ten days or two weeks was the period estimated as needful to permit of making the necessary alterations and providing the vessel with a steam laundry, steam sterilizing apparatus, and ice and carbonating plants, but it was not until August 23 that the ship was reported ready to sail, and even then a good deal of work had to be done on board during a stormy passage to Santiago. She returned from Cuba with 256 sick men, who were landed at Montauk Point. Her second voyage was to Porto Rico, whence she brought 270 patients to the Josiah Simpson Hospital, Fort Monroe, Va., on October 6.

The hospital ship Olivette.—This vessel was a steamship which had been doing service as a water boat for the fleet of transports when Lieutenant-Colonel Pope, chief surgeon of the Fifth Army Corps, selected her for use as a hospital ship during the voyage from Tampa, Fla., to Santiago, Cuba. The equipment of one of the field division hospitals of the corps was used in outfitting her for this work. On the arrival of the fleet at Daiquiri she relieved the transports of their sick, many of whom were later transferred to the steamer *Iroquois*, so that room was made on the improvised hospital boat for the wounded expected from the impending battle. The *Olivette* answered her extemporized purpose excellently. She left Santiago July 9 with 279 wounded officers and men and reached New York on the 16th. She returned to Santiago with medical supplies for the troops, and on August 15 sailed with 203 sick men, who were distributed in Boston city hospitals. The *Olivette* sailed August 25 from Boston under orders to Fernandina, Fla., for the purpose of bringing sick to the general hospital at Fort Monroe, Va. On August 31, while coaling in stormy weather off quarantine at Fernandina, she listed heavily, filled with water, and sank in 20 feet of water. No loss of life occurred.

THE HEALTH OF THE TROOPS.

Promptly following the declaration of war, arrangements were made by the War Department to recruit the Regular Army to its war strength, and to muster in the volunteer troops called out by the proclamations of the President. The Regular Army at that time consisted of well-developed men, sound in physique, and well drilled and disciplined. In its ranks were only about 40 boys under 21 years of age enlisted as musicians; but when recruiting was begun the minimum age for enlistment in the regulars was reduced to 18 years, and boys of this age were accepted for the volunteers. In my opinion, this reduction of the age limit had a notable influence in increasing the prevalence of disease among the troops. All military experience shows that young men under 21 years break down readily under the

strain of war service; and every regiment had many of these youths in its ranks.

I am of the opinion, also, that the haste with which the volunteer regiments were organized and mustered into the service was responsible for much of the sickness which was reported in the early days of their camp life. Medical examiners were appointed to testify to the physical qualifications of each man before acceptance, but, notwithstanding this, which at the time was characterized in the press as a very rigorous procedure, so many men were afterwards found on the sick lists of the camps unfit for service, from causes existing prior to enlistment, that special arrangements had to be made for their discharge.

Soon after the newly raised levies were aggregated in large camps sickness began to increase progressively from causes that were so general in their operation that scarcely a regiment escaped from their harmful influence. These causes may all be referred to ignorance on the part of officers of the elementary principles of camp sanitation, and of their duties and responsibilities as regards the welfare of the enlisted men in their commands. Officers who were responsible for the clothing and equipment of their men, for their shelter, drill, discipline, and personal cleanliness—in fact, for their comfort, well-being, and sound physical condition—were to a large extent ignorant of how to act in order to sustain their responsibilities, and others were even ignorant that these responsibilities rested on them. Medical officers, as a rule, were also without experience in the sanitation of camps and the prevention of disease among troops. The few who knew what should be done were insufficient to control the sanitary situation in the large aggregations of men hastily gathered together. As a result officers and men appear to me to have regarded the deplorably insanitary conditions under which they lived in their camps of organization as the inevitable conditions of camp life preparatory for field service, and to have accepted them without question until general attention was attracted to them by an outbreak of typhoid fever. Officers and men in these camps were rife for war, and drill, parades, practice marches, and military-camp duties occupied the whole of their time and energies. Considerations of domestic economy and sanitation in the companies and regiments were not given proper consideration, and men who were being taught to meet the enemy in battle succumbed to the hardships and insanitary conditions of life in their camps of instruction.

The sites of certain of the camps have been instanced in the newspapers as the cause of the sickness that was developed in them. It is true that in some localities the sinks could not be made of the proper depth on account of underlying rock; in others a substratum of impermeable clay, and in others again a high level of the subsoil water interfered with a satisfactory condition of the sinks. At Miami, Fla., the water supply was generally regarded as not good, and at Camp Merritt, Cal., the climatic conditions were such as to lead to its speedy abandonment. But these were local conditions, while the sickness which invaded the camps was general in its onset. A review of the whole situation shows that it was not the site but the manner of its occupation which must be held responsible for the general spread of disease among the troops.

The primary evil was overcrowding of the site. The aggregation of the troops was effected hastily. On his arrival at Camp Alger the medical officer assigned to duty as chief surgeon found a number of

regiments already in camp; "troops were arriving with every train, generally without previous announcement, and these camped where they saw fit." As a general hygienic, as well as a military principle, troops in the field should encamp in rear of their color line. The area occupied as a camping ground should be as wide as the color line is long. This gives wide streets, ample space for the separation of tents, and a front which affords room for the needful sink accommodation. But no principle of this kind was manifest in the regimental camps of the newly organized commands. On the contrary, the idea seemed to prevail that the troops should be compacted as much as possible. Both at Alger and Chickamauga the companies of a regiment were crowded on an area insufficient for those of a battalion, and brigades were packed together with scarcely an interval between the regiments. Lieutenant-Colonel Smart, in his inspection of Camp Alger, found company streets hardly wider than the intervals between adjacent companies should have been, and tents of the same company in contact with each other on the sides and in contact on the ends with those of the adjoining company, so that the double row of tents between the narrow company streets made a continuous canvas covering 70 to 80 feet long and 16 feet wide, under which 100 men had to find shelter. Even when space was allowed between the tents of the same and adjacent companies, it was wholly insufficient for proper trenching, ventilation, and passageway. With streets reduced in some instances to a width of only 13 feet, the natural surface of the ground with its matting of grass roots is speedily eroded and the camp surface converted into a layer of dust or mud, according to the character of the weather. This constitutes a serious evil, but the great sanitary objection to crowding the area in this way is that the slops and garbage of the kitchens and the excreta of the sinks are too near to the quarters of the men. Fecal odors were perceptible in many of the camp streets; and of certain regimental camps it is reported that their odors were in themselves a veritable nuisance. The contracted front of the camp gave no room for a sink of the proper size for each company. A battalion of troops had to use a sink insufficient to accommodate a company. It was impossible to keep these pits in good condition when used by so many men. Covering the excreta at regulation intervals was unsatisfactory, as fresh deposits were made while the police party was at work. Efforts were made to remedy this by requiring the individual men to cover the deposits as soon as made. There was no room for the only efficient remedy, a sufficient number of properly constructed and well-cared-for sinks, 150 yards in front of the color line, or at a corresponding distance on the flanks of the camp. These small sinks had the further disadvantage that they were filled up almost as soon as dug and had to be replaced by freshly dug pits, so that in a short time the whole of the contracted front of the camp was converted into sink surfaces. On April 25, 1898, foreseeing the likelihood of insanitary conditions in the camps of our newly raised troops, and with the view of preventing them, I issued Circular No. 1 from this office impressing upon medical officers their responsibility in sanitary matters, and the necessity for a strict sanitary police, particularly in the care of the sinks and in the preservation of the camp area from contamination. But the density of the military population on the area of these contracted camps prevented the possibility of a good sanitary condition. Camps of this character may be occupied for a week or two at a time without serious results, as in the case of national guardsmen out for ten days' field practice during the

summer, but their continued occupation will inevitably result in the breaking down of the command by diarrhea, dysentery, and typhoid fever.

Not only was the area crowded by the tentage, but the individual tents were overcrowded. Four to seven men were crowded into the small, wedge-wall tent which covers an area of only 7 by 8 feet. Some company or regimental commanders encouraged their men to build sleeping bunks, or rather low platforms, for the area under canvas would not permit of a separate bunk for each man; others directed the men to carpet the floor of their tents with pine twigs or a layer of bark. Others again had straw littered on the floor; but most of the commands lay for weeks upon the ground, their blankets soiled and matted with dust, and their clothes, even to their change of under-clothing, soiled and dusty, for it was impossible to preserve anything clean under such primitive camp conditions. Facilities for bathing were rarely found in the camps, and laundry and lavatory facilities were not always readily available.

These troops were subjected to most of the discomforts, hardships, and climatic exposures inevitable to an active campaign, while nominally enjoying the comforts of a fixed camp of instruction. Only on active service in front of an enemy should it be allowable to have men sleep on the ground for weeks at a time, under insufficient shelters, and with inadequate facilities for personal cleanliness. On active service many of the insanitary features of their surroundings would have been removed. While campaigning they would have changed camp sites from time to time and would have been freed from the harmful influence of accumulated filth, while opportunities for bathing would have been presented occasionally in passing or camping near streams. The only explanation that can be given is that the officers, military and medical, having no experience of military life in the field, assumed that the deplorable condition in which they were living was the usual mode of life of soldiers situated as they were, and that their duty as true soldiers was to endure, not only without complaint, but with a certain pride, the hardships of their camp life.

Practically nothing was done to make the men comfortable or to remedy the insanitary conditions until these were brought to the attention of the Secretary of War by inspectors sent out by special orders from the War Department. Then the camps held for so long were abandoned, but not before the manifestations of typhoid infection were rife in them, new sites were carefully selected, regimental camps were expanded, company tentage increased, and board flooring provided. Then, for the first time, the troops went into camps suitable for the occasion.

An increased prevalence of diarrheal diseases was the first manifestation of danger in the early camps. Much of this was no doubt due to chill to the surface in cooling off after the perspirations attending drills in hot weather, much to sameness of diet and bad cookery, much to over-indulgence in fruit of doubtful quality, pies, etc., purchased from peddlers of food and soft drinks who were established in business in or around most of the camps, and much to similar indiscretions following the arrival of boxes of dainties from friends at home. Chill to the surface was aggravated by the ignorance or recklessness of the men, few of whom appreciated its danger. The sameness of diet led to criticism of a ration which is not only more liberal than that of any foreign military service, but more liberal than that

which sustained the volunteers of the civil war during their arduous campaigns. Regimental commissaries and company commanders require experience which few of our volunteer officers possessed. The annual outings of the National Guard, with a caterer to provide special diet for the men, gave no opportunity for line officers to learn how to use a fixed ration to the best advantage or to exercise the needful supervision over cooks of doubtful qualifications. But notwithstanding the disadvantages arising from this ignorance, medical officers generally report that so-called delicacies purchased by individuals or sent by sympathizing friends was the cause of more sickness than the sameness of the Government's ration aggravated by bad camp cookery. It is hardly needful to cite reports to sustain these statements. Many medical officers noted each of these causes and cautioned commanding officers against them. Testimony of a similar kind comes from Porto Rico and the Philippines. General Brooke attributed the diarrheal troubles which affected his command to the excessive indulgence of the men in the fruits of the island, and the chief surgeon of the Department of the Pacific, in referring to the prevalence of diarrhea and dysentery, attributes these diseases to the difficulty experienced in restraining the men from eating and drinking unwholesome articles.

One prominent cause of the increase of sickness in the early camps has been commented upon by only a few of our medical officers. These cite the prevalence of drunkenness and of venereal disease due to the facilities and temptations afforded by the proximity of cities to the large camps. They hold that if the systems of the men had not been weakened by dissipation they would not have succumbed so readily to the other influences which affected them.

Malarial fevers added to the sick lists of camps in Florida, and of southern regiments in the camps in Georgia and Virginia.

It was, however, typhoid fever which broke down the strength of the commands generally, the outbreak becoming distinctly manifest in July. Sporadic cases appeared in most of the regiments in May and June, these cases having been brought, in many instances, from the State camps. In fact some regiments, as the Fifteenth Minnesota, suffered more from this disease at their State rendezvous than any of the regiments in the large Federal camps. A few of the regimental commands in the latter may be said to have escaped visitation. The sanitary conditions affecting the commands in the various camps have been studied in connection with the prevalence of typhoid fever among the men by a board of medical officers consisting of Majors Reed, Vaughan, and Shakespeare, but the results of the investigations of this board have not as yet been reported in full. It appears to me, however, from a general review of the sanitary reports already filed, that the prevalence of the disease was proportioned to the insanitary camp conditions which I have described above. My circular No. 1, already cited, was intended to bring the danger from this fever to the notice of medical officers with the view of obviating it. The probability of its communication to soldiers in camp through the agency of flies was pointed out as a reason for insisting on a sanitary police of the strictest character. At the time of the outbreak and rapid spread of the disease all the camps were suffering from what many reports characterized as the "plague of flies." Clouds of these insects swarmed about fecal matter and filth of all kinds deposited on the ground or in cesspools or sinks, and conveyed foul and infectious matter thence to the food exposed while in preparation in the company kitchens or while being served to the men.

It is well known to the medical profession that this fever is propagated by a contaminated water supply, and it is now recognized that the great prevalence of this disease in an aggravated form in the camps of the civil war was due to the use of surface and shallow well waters infected by typhoid excreta. To prevent transmission by the water supply I recommended the use of boiled and filtered water when a pure spring supply could not be obtained, and to enable an efficient filtration of suspected waters to be made field filters of approved construction were issued on my recommendation by the Quartermaster's Department. Circular No. 4, of May 31, 1898, was issued from my office that medical and company officers might have a thorough understanding of the intention and action of these filters and that the full benefit of their use might be secured to the troops.

Chief surgeons were instructed to forward samples of water to this office for analysis whenever a doubt existed as to its quality, and the water supply of several of the camps was thereafter kept under analytical observation. This care exercised in the exclusion of typhoid infection from the water did much to retard the epidemic progress of the disease. Regiments camped near each other and using water from the same sources were not equally affected, thus showing that the cause was disseminated in other ways than by the water supply. The disease was slow in its development at Jacksonville, Fla., which had a water supply from artesian wells. But the infection once introduced into a camp, from State rendezvous or by sporadic infection from the neighborhood, began slowly to spread on account of the close contact of the men through overcrowding and the bad condition of the sinks.

Undoubtedly the very dust of the camp site became a medium for the transmission of the disease from the drying up of deposits of filth on the neighboring surface, and from the breaking up of the dried soil over disused sinks. At Tampa, Fla., many of the sinks were shallow, and heavy rains flushed their contents over the surface of the ground to become afterwards dried and pulverized; and at Jacksonville, where barrels were used instead of privy pits, it is reported that there was much carelessness in the handling of the tubs, and that during their transportation through the camps the contents were frequently spilled. Troops camped on the leeward side of the line of transportation suffered heavily from typhoid fever.

The prevalence of typhoid fever was lessened in some instances by leaving the infected locality, and exercising greater care in the arrangement and sanitary administration of the new camps. This was illustrated by the record of the Second Army Corps after its removal from Camp Alger, Va., to Camp Meade, Pa.

The infection was carried by the Fifth Army Corps from Tampa to Santiago where, under the unfavorable conditions affecting the troops in the trenches, its rapid spread, together with the occurrence of yellow fever and the general prevalence of malignant malarial fevers, occasioned the utter breakdown of the health of that command. The infection was carried also to Porto Rico, but its spread, so far as I can learn from the reports that have been rendered, has not been as rapid as in the home camps, probably on account of the movement of the troops from place to place in the advance from Guanica.

The disease prevailed to a considerable extent among the regiments aggregated at Camps Merriam and Merritt, San Francisco, Cal., for embarkation to the Philippine Islands, but according to the latest advices from the chief surgeon at Manila it appeared to any extent in the command there. This is probably attributed to

the use of distilled water during the long voyage and the flushing of the latrines on board ship by a constant stream of sea water. All men notably sick were left behind at the division hospital at the Presidio; and it must be assumed that the cases embarked in the incubatory stage were prevented from infecting the command by virtue of the excellent sink arrangements. Only 14 deaths from typhoid fever were reported from the expeditionary force of 18,000 men from May 25, when the first vessels sailed, to August 31, the date of the last report received.

THE CARE OF THE SICK AND WOUNDED.

Each regiment of the Volunteer Army was authorized by law to have 1 surgeon, 2 assistant surgeons, and 3 hospital stewards. Inasmuch as at the time of its muster into the service of the United States it was of necessity a separate organization, the sick had to be cared for by the regimental medical staff, assisted, in the absence of hospital corps men other than the stewards, by enlisted men of the line detailed by the regimental commander for duty as hospital attendants. Each regiment of the Regular Army had one or more medical officers, and its quota of hospital corps men detached from the military stations at which the companies of the regiment had been stationed prior to the outbreak of the war; and each had an ample provision of medical supplies derived from the same sources. Some of the regiments of the Volunteer Army were provided by State authorities with more or less of the equipment needful to establish a regimental hospital, but the majority had little or nothing in the way of medical supplies. I have already stated (p. 691) the measures adopted by me to supply the necessities of these regiments.

As soon as the regiments were organized into brigades and divisions, preparatory to active service, it became the duty of each chief surgeon of an army corps to see that the medical department of his command was organized to meet the casualties of battle. The object of the concentration of the troops was to accustom the regiments to operations in which they constituted the units of a higher organization. The experience of the civil war demonstrated that for efficient service in an active campaign the medical department also required a higher organization. Circular No. 3, from this office, dated May 18, 1898, in specifying the duties of the various medical officers in an army corps, indicated the character of the organization to be adopted. The seriously sick were to be treated in division field hospitals (unless their transfer to a general hospital was advisable) under the care of the most experienced physicians and able surgeons on duty with each division. Medical officers left on duty with their regiments were to exercise sanitary supervision over the well men and to determine whether a soldier reporting himself sick should be sent to hospital or remain as a trivial case under treatment in quarters. This consolidation of the medical force by divisions, implying as it did the breaking up of the regimental hospitals, met with a strong opposition from regimental medical officers, particularly from those who were not detailed for special service at the division hospitals. Regimental commanders were also, in many instances, opposed to it, forgetful that the object of the medical department, as of the line, was to get into training for field service. Similar objections were raised in 1862 and 1863 to the establishment of field hospitals and the practical disestablishment of the regimental institutions, but the civil war lasted long enough to demonstrate the efficiency of the system.

The Fifth Army Corps.—The organization of the division hospitals of the Fifth Army Corps was begun May 3 at Tampa, Fla. Long before the corps embarked for Cuba its field hospitals were in condition for efficient service, and although its ambulance companies were not filled up to their intended strength nor fully equipped with ambulances, wagons, horses, and harness, such sections of them as had their equipment completed were well drilled in hospital corps work and ready for active service. Each hospital had about eight 6-mule wagons to haul its tentage and supplies. The equipment of the Second Division hospital was completed at an early date. It contained 85 cots, with a sufficiency of furniture and necessary fixtures, and as the demand for extra accommodations increased, the capacity of the hospital was augmented to 150 beds. The operating tent was provided with enameled-steel folding operating tables, steam sterilizers and water heaters, bath tubs, and other necessary appliances. The hospitals of the First and Third divisions and of the cavalry division were similarly outfitted. In addition to these hospitals certain medical supplies, with 1 acting steward, 1 private, 1 hospital and 1 common tent, 1 ambulance wagon, and the necessary animals fully equipped were retained as a minimum allowance with each regiment. (General Orders, No. 14, Headquarters Fifth Army Corps, June 6, 1898.)

Subsequent events, however, rendered valueless these preparations of the medical department for active service in Cuba. When the command embarked on the transport vessels, the baggage wagons and mules were left behind "and were never seen again by the medical department of the Fifth Army Corps." The ambulance trains of all the divisions, with a large part of the outfit of each of the hospitals were also left behind. Three ambulance wagons were taken apart and stored on one of the vessels. These did excellent service at San Juan and El Caney and showed how efficient the ambulance companies would have been had they not been deprived of their equipment. Ten of the ambulances of the third or reserve divisional hospital were subsequently shipped to Cuba, where they arrived July 2, and were of value in moving the sick and wounded to the hospital at Siboney and to the hospital ships and transports. The ambulance service of the division hospitals of this command was thus practically destroyed by these failures to embark or disembark its wagons, harness, horses, and mules. Part of the tentage and property of the hospitals was left at Tampa with the sick left there. Of the property and supplies carried to Cuba, a portion was not available for service at the time it was most needed, to wit, on July 1, 2, and 3, when the wounded from El Caney and San Juan were coming from the front for care and treatment. This was because, in general, no opportunity was afforded to land the medical property, because there was no transportation on shore for such articles as might be landed, and because the masters of transports took their vessels out to sea after the debarkation of the troops because of their fear of wreck by collision with each other or by drifting on the rocks. Earnest efforts were made by medical officers to have supplies at the front with the troops. Some having succeeded in getting their medicine chests and other articles of medical property ashore had these carried forward on litters by hospital corps men to the camps near Sevilla, while others turned their private mounts into pack horses for this purpose. A reserve supply of medicines shipped on the *Segurança* from the purveying depot at Tampa was landed June 27. These, issued to regimental medical officers, materially relieved the tress caused by the failure to land their regimental medicine chests.

The tents and property of the First Division hospital were landed by the efforts of the hospital corps men, under the direction of Maj. M. W. Wood, surgeon, United States Army. The hospital outfit was carried to the front by hand and on litters used as handbarrows by the nurses and attendants.

The second field hospital landed was that of the cavalry division under Major McCreery, but the transport put to sea before the whole of the property was removed from her. This, with the immediate incoming of the wounded from the fight at Guasimas, led Major Havard, the chief surgeon of the division, to look for assistance from the Red Cross Society. Assistance was freely given then and afterwards, but a misunderstanding, the particulars of which have been specially reported by Major Havard, gave origin to many press accounts of the refusal of Red Cross assistance by medical officers. Both Major Havard and Lieutenant-Colonel Pope, the chief surgeon of the Fifth Army Corps, have testified to the value of the field supplies received from the *State of Texas*, the Red Cross supply ship, and to the earnest and untiring work of Miss Barton and her assistants in caring for the wounded.

The Third Division hospital, which was landed from the *Saratoga*, after many delays, afterwards became the base hospital at Siboney. To this were sent all the medical supplies recovered from the transports or landed from the hospital ship *Relief*. The fourth divisional hospital of the corps was retained on the steamer *Olivette*, which was thus extemporized into a hospital ship. The tents and camp outfit of this hospital were landed for service at Siboney. During and after the battles at El Caney and San Juan there was an insufficiency of tents, cots, bedding, and medicines, due to the causes already stated, but all the hospitals were well equipped for surgical work.

Early in the second week of July a few cases of yellow fever appeared among persons who had occupied the huts at Siboney, and day by day thereafter a steady and rapid increase of the disease was observed. This necessitated the establishment of a yellow-fever hospital and of a detention hospital in which cases of a suspicious character coming from the camps were held pending a decision as to their nature. The want of shelter was seriously felt at these hospitals, and was, under the circumstances, corrected but slowly when tents could be spared from the base hospital at Siboney, and from the first divisional hospital as its wounded were removed for transportation from Cuba.

After the capitulation of Santiago the troops at the front broke down rapidly under the fatigues they had undergone and the malarial influences to which they were exposed. Remittent and typhoid cases became exceedingly common.

By this time an ample supply of tents, furniture, bedding, clothing, and medical stores had reached Siboney, together with a corps of trained nurses and a force of surgeons, those sent to duty at the yellow-fever hospital being immune to that disease. Meanwhile, to relieve the pressure on the field hospitals, such convalescents and sick as could bear the journey home were sent to the United States on transport vessels.

This was an emergency measure to relieve the hospitals at Siboney and permit of the transfer to them of the men who were sick in regimental camps. It should have been carried out under the supervision of the military authorities at Santiago, who alone were cognizant of the necessity and of the means available for effecting the transfer. My circular of July 18, 1898, defining the duties of army medical

officers, requires that the chief surgeon of a corps "should supervise the movement of sick and wounded to the base or general hospitals, providing transportation and detailing medical officers and attendants for their care." The lack of surgeons and nurses on these vessels was probably unavoidable, this lack, because of sickness and other causes, being one that pertained to all the hospitals of the corps at that time and to many regimental organizations also. Furthermore, the convalescents were supposed to be practically well men, and at least able to care for themselves, excepting during such illness as might break out during the voyage, and for this contingency provision supposed to be reasonable was made by the presence of one or more medical officers and the supply of some of the most necessary medical stores.

The transfer of troops from Santiago to Montauk Point, New York, was also an emergency measure, but it was conducted under proper supervision by the military authorities concerned. The great responsibility of excluding yellow-fever infection from every transport rested on the medical officers who had charge of the embarkation. Had they failed in this duty the effect would have been disastrous during the voyage to the men confined on shipboard, and the risk of importing the disease into this country would have been greatly increased. Fortunately the delicate task was accomplished without the occurrence of any such outbreak of disease among the troops as was anticipated by many medical men and others who could appreciate the deadly character of the risks involved.

The sanitary conditions on board of most of these transports were fairly good. According to reports rendered by Maj. Walter D. McCaw, surgeon, United States Volunteers, who accompanied the Sixth and Thirteenth United States Infantry on the *Vigilancia*, the ventilation of the sleeping quarters of the men was satisfactory—plenty of deck room was available and the berths below were not overcrowded. The ship's officers and crew were attentive to the wants of the command, aiding the men in the preparation of their meals and in making them comfortable in their quarters. The water supply was plentiful and good. The weather was excellent during the short voyage, and the health and spirits of the men improved every day.

In view of the necessity for the return of the troops of the Fifth Army Corps from Santiago, Cuba, preparations were made for encamping them at Montauk Point, Long Island. These included the establishment of temporary tent hospitals, not only for the treatment of the large number of sick brought by each command from Cuba, but for the isolation and treatment of those from transports lying under the suspicion of yellow-fever infection.

The detention hospital received its first cases on August 15. At that time it consisted of separately pitched hospital tents, but as the cases received from the transports increased in number, framed and floored tent pavilions were erected, consisting of six tents pitched end on to each other, with a fly inserted in the middle length of the pavilion to promote ventilation. On August 31 fourteen of these pavilion wards were in use, with 40 tents pitched singly for convalescents. At this time there were 15 medical men on duty at the hospital. At first the corps of nurses comprised only 41 members of the Hospital Corps and 4 volunteer Red Cross nurses. Policing was done by hired laborers. A temporary detail of men from the Two hundred and third New York was obtained to increase the hospital force until the arrival of trained female nurses. Sixty of these were employed at the hospital. The patients were provided with cots, bed linen, and

blankets, and the limit of 5 patients to each tent was seldom exceeded. This hospital had about 500 beds. Civilian cooks were employed. Milk and eggs were always plentiful for special diet. Medicines were drawn from the Montauk Point hospital, which was but a few hundred yards distant. The difficulties in the way of administering the affairs of this establishment were very great, owing to the rapidity with which the transports followed each other in their arrival. As many as four reached the Point on some days from August 13 to 31, most of them bringing sick requiring detention for medical observation. The obviously temporary nature of the establishment prevented efforts to provide it with fixtures or furniture when the purpose could be effected by extemporizations. Thus, in the tents used as offices, dispensary, and storehouses, empty packing boxes were utilized as desks, washstands, etc. This no doubt created an impression of discomfort and privation in the minds of superficial observers, but the sick men were as well cared for and as comfortable in their cots here as afterwards when transferred to the general hospital at Montauk Point. There was an excellent steam disinfecting plant on the grounds, with a formaldehyde chamber attached. The laundry work was done at a steam laundry near the hospital.

The temporary tent hospital, which was locally known as the general hospital, Montauk Point, consisted of eighteen pavilions similar to those of the detention hospital. A central corridor running east and west had nine of these pavilions opening on it on each side. An annex had speedily to be constructed to accommodate the large number of sick arriving on the transports, transferred from the detention hospital, or received from the regimental camps of the Fifth Army Corps. This annex consisted of fourteen tent pavilions, arranged seven on each side of a central corridor. Other pavilions were added in parallel rows as an extension of the accommodations became necessary. Tent pavilions were used as dining rooms, but frame buildings were erected for use as kitchens. The capacity of this hospital was 1,600 beds. Its personnel consisted of 40 medical men, 3 stewards, 10 acting stewards, 120 privates of the Hospital Corps, 15 cooks, 50 male nurses, and an average of about 200 female nurses, one-half of whom were Sisters of Charity. Supplies of all kinds were amply provided on timely requisitions. Emergency calls were met by direct purchase in New York City. Large supplies of milk, eggs, chickens, canned articles, and other material for special diets were always on hand. Provision for special diet was made not only by the hospital, but by the Massachusetts Volunteer Aid Association, the Red Cross Society, and the Women's War Relief Association. Cooks and helpers were kept on duty night and day to meet emergencies in special cases.

In one or two instances inquiry has been made as to the treatment of the body in the case of soldiers who died at these or other military hospitals. As a rule, immediately after death the body was washed, the jaws bandaged, and the rectum closed. When cold the body was dressed in uniform and placed in a coffin. If the relatives of the dead soldier desired his body to be sent home for burial an undertaker removed it to his establishment, where he embalmed it and expressed it to its destination in a hermetically sealed zinc-lined coffin. If no communication was received from the relatives it was buried in a suitable place twenty-four hours or more after death unless hot weather rendered an earlier burial necessary. The grave was properly marked for identification.

The Medical Department has been criticised adversely for granting furloughs to go to their homes from this camp and its hospitals to

from seeing beyond the immediate necessity. The sick had to be cared for, and to this end medicines and other things had to be procured. Relief societies offered assistance, and this was eagerly accepted by many of these medical officers, not alone for delicacies or luxuries not otherwise provided for, but for supply table articles which could have been had from the medical purveyors in their camps or by telegraphic requisition on the Surgeon-General. It was easier to accept what was so freely offered than to learn how to obtain the articles from the proper source. The aid given by the relief societies did harm indirectly by demonstrating this fact. To explain their prompt acceptance of this assistance these officers referred to the red tape of the War Department methods, and the insinuation that the said methods were beyond the comprehension of the ordinary intellect was accepted by the sensational press as an explanation in full. In these early days of the camps the exuberance of the patriotic spirit of the people which led them to aid the sick soldiers did much good, but, as I have implied, it also did much harm.

Meanwhile chief surgeons of corps and divisions began the organization and equipment of their field division hospitals and ambulance companies, but they were met at the outset by the apparent impossibility of securing men for service as cooks, nurses, litter bearers, ambulance drivers, teamsters, etc. The Hospital Corps of the Regular Army could not supply these men, because recruiting for this corps progressed slowly. The popular tendency to volunteer led men away from the regular recruiting offices. In the regimental hospitals the sick were cared for by details from the companies, but when transfers from the volunteer regiments to the regular Hospital Corps were authorized (see p. 14) these men did not care to leave their local connections for service in the Army at large as regular soldiers. Concessions were made to them—among others, that when their former regiment became attached to another corps, camp, or duty they also would be detached to accompany it—but notwithstanding these the Hospital Corps was recruited so slowly that had the military necessity required one or more army corps to take the field their medical service could have been perfected only by drafting men from the incomplete hospital organizations of those corps that remained in the home camps of organization and instruction. It may be mentioned also as a well-recognized fact that the transfers so much desired by the Medical Department to enable it to complete its organization were not regarded favorably by line officers, for, although every line officer will probably acknowledge as a general principle that only the most intelligent and capable men should be employed to care for the sick and wounded, he is not likely to act on this general principle when it is a question of withdrawing for such service the most intelligent and capable men of his own company or regiment.

The division hospitals of the First and Third corps at Camp George H. Thomas, Chickamauga, Ga., and of the Second Corps at Camp Russell A. Alger, Falls Church, Va., were usually established in the immediate neighborhood of the regimental camps of the divisions. They consisted of two or three hospital tents pitched end on to each other as pavilion wards, or of four or five tents, two or three end on to each other at each end of an intervening fly, the latter inserted to break the continuity of the wall and thus to promote ventilation. The pavilions were arranged in various ways, according to the configuration of the area available as a site, but in general there was a tendency to crowd the area. In none of the camp hospitals were the

be stated that on July 27, 1898, the hospital of this division consisted of 37 hospital tents, 8 conical and 6 common tents, with 285 cots, 250 of which were occupied by patients, cared for by 8 medical officers, 6 stewards, and 138 privates, of whom 25 were detailed from the line of the Army. The hospital streets were broad and the general police excellent. The general wards were in good condition, but the typhoid fever wards were crowded. Assistance was given by the Red Cross, including milk, special articles of food, comforts, and ice.

The division hospitals of the Second Corps at Camp Alger were relieved by transfers to the general hospital at Fort Myer, Va. The overflow from the division hospitals of the First and Third corps was at first received at the Leiter Hospital, at Chickamauga Park, Ga., but as this proved insufficient, a large hospital was established in August to receive the rapidly increasing number of cases of sickness occurring in these corps. This hospital early in September was officially recognized as the Sternberg General Hospital. Its first report showed a capacity of 750 beds and a personnel of 15 medical men, 1 steward, 6 acting stewards, 107 privates of the hospital corps, and 167 female nurses. On the movement of the Third Division, First Army Corps, from Camp Thomas to Lexington, Ky., its sick and the equipment of its field hospital were left in situ, the establishment, then containing 500 beds, being known first as the Sanger and afterwards as the Alexander H. Hoff General Hospital. It was discontinued September 25, when its sick were in condition to be furloughed.

The division hospitals of the Seventh Army Corps, at Jacksonville and Miami, Fla., consisted of 6 tent pavilion wards of 5 tents each, with a fly between the second and third tents of each ward. The pavilions formed a semicircle of radii from a central point, at which was established the office, dispensary, etc., of the hospital. Two pavilions were to be regarded, under ordinary conditions, as the allowance of accommodation for each brigade; and the attempt was made to keep men of the same regiment together to satisfy the desire of the volunteer troops to preserve the regimental organization in the medical service of the corps. The prevalence of measles and mumps necessitated the pitching of extensive isolation wards in connection with the formally planned pavilions.

In August preparations were made at the First Division hospital at Jacksonville to give a better shelter than that afforded by the tents. The proposition to build frame pavilions, each for 60 beds, was approved, and building was begun under contract. Concerning the hospitals of this corps a board of medical officers convened by Special Order 194, Adjutant-General's Office, August 1, 1898, reported favorably. The board considered the equipment ample as to tentage, cots, bedding, etc., and was well pleased with the care and treatment given to the patients. The cots and bedding were sent from the supply depot in New York City.

A rapid increase of sickness in the Second Division, at Miami, as compared with the First Division, at Jacksonville, led to a thorough investigation as to its causes. The tents were pitched a short distance from the town on a rough tract of ground of coralline formation. The troops were fairly well supplied with tentage and cooking utensils and the camp was well policed. Sinks were not generally used, as it was difficult to make them of the proper depth. Metallic troughs or latrines flushed into the ocean by a constant stream of water were used in the First Brigade, while the Second Brigade was

provided with galvanized iron tubs, which were taken away twice daily to be emptied into the ocean. Garbage was collected and carried to the municipal dumping ground. Water was delivered by pipe lines from the supply of the town. It was derived from a pond or lake in the everglades, and was reported as being warm and having a disagreeable taste and odor, on account of which the men used that from wells. These wells were regarded by many as contaminated with surface drainage. In fact, the opinion that the water supply was the cause of the prevailing sickness was generally entertained. Samples analyzed at the laboratory of this office gave results confirmatory of this opinion. The division hospital was established on a vacant lot in the center of the town, an unsuitable and insanitary location. On account of insufficient area, cases of measles, many of which were under treatment, could not be properly isolated. Sinks and garbage, emitting an offensive odor, surrounded the lot. The hospital was fairly well provided with tents, folding cots, medicines, and other needful supplies to care ordinarily for the sick of a division. Early in August the troops were moved to Camp Cuba Libre at Jacksonville, Fla.

The hospital of the Third Division was established at Panama Park, about 6 miles from Jacksonville.

In connection with the division hospitals of this corps a convalescent camp was established July 27 at Pablo Beach, 16 miles from Jacksonville, for the recuperation of men who had become debilitated through climatic influences.

The Fourth Army Corps.—A few regular and volunteer regiments concentrated at Mobile, Ala., formed the nucleus of the Fourth Army Corps and of the cavalry division. A division hospital of 200 beds was established here, but shortly afterwards the corps moved to Tampa and Fernandina, Fla. Tent hospitals were established and an excellent reserve ambulance company was manned and equipped for service with troops expected to operate in Cuba or Porto Rico. The sanitary conditions in the camps at Tampa were not good. Malarial fevers became prevalent and typhoid fever common. The division hospital had to be relieved by removing serious cases in the hospital train of the medical department (see page 106), to the general hospital at Fort McPherson, Ga. About August 1 an overflow hospital was organized in a school building at West Tampa.

The spread of disease among troops remaining in Tampa after the departure of the Porto Rican expedition led to the removal of many of the regiments to the neighborhood of Fernandina. The hospital of one division was pitched on the beach about 3 miles from Fernandina. A convent in the city was also used for hospital purposes.

About July 20 the troops for the invasion of Porto Rico embarked and sailed. The field-hospital accommodation with this expeditionary force was ample and the supplies abundant. The chief surgeon of the Fourth Corps urged the shipment of his reserve ambulance company with this expedition, but General Brooke considered this to be unnecessary.

A short time after the arrival of the troops at Ponce, malarial fevers appeared among them, and typhoid infection, brought from Chickamauga, Ga., and Tampa, Fla., manifested its presence in the camps. Some of these cases were sent home on returning transports, but as the voyage was found to be very trying to severe cases of typhoid fever I telegraphed Colonel Greenleaf, to establish a general hospital at Ponce for such cases as were

considered to be preferable to the use of any of the buildings in the city. Two hundred hospital tents were sent by the *Concho* on August 13, and furniture, supplies, medical officers, and nurses on the *Relief*, *Obdam*, and other vessels. Colonel Greenleaf was also well supplied with funds to provide everything necessary for the well-being of the sick. No special report of the conditions of this hospital has yet been received.

Troops on the Pacific coast.—The troops on the Pacific coast were concentrated mostly at San Francisco, Cal. Camp Merriam came first into existence on the Presidio reservation near the Lombard-street entrance. Nearly 10,000 men were encamped here, but when it was understood that the expeditionary force to the Philippines was to be increased to 20,000 men a new camp had to be established. The site selected was near the northern boundary of the Golden Gate Park, including the sand dunes in its vicinity. This was Camp Merritt, at which 18,000 thousand troops rendezvoused for shipment to Manila. Much sickness occurred among the regiments in this camp. Some of the commands brought with them the infection of measles, and this disease spread rapidly. The cases were in many instances complicated with bronchitis and pneumonia on account of exposure to the cold, raw winds which blew constantly over the site, a site selected without consultation with any representative of the Medical Department. Cases of typhoid fever also appeared, with a few cases of cerebrospinal meningitis.

Camp Merritt was therefore abandoned, and the troops of the independent division of the Eighth Army Corps were removed to the grounds of the military reservation at the Presidio.

Eighteen thousand of the troops from Camp Merriam and from Camp Merritt were dispatched to the Philippine Islands. They were carried on twenty transport steamers, the first expedition sailing on May 25. Each steamship, before being accepted by the Government, was inspected by a board of medical officers, and in each instance the vessel was thoroughly disinfected before the troops went on board. Two or three medical officers, as many hospital stewards, and ten to fifteen privates of the Hospital Corps, equipped for field service, were assigned to each ship. With each expedition was a large quantity of medical supplies to provide the troops for six months and to equip suitable hospitals at Manila. These supplies included medicines, surgical instruments, dressings, hospital furniture, beds and bedding, and all the miscellaneous articles required for the proper treatment and care of the sick. Many articles believed to be necessary in the treatment of the diseases incident to the climate of the Philippine Islands were largely in excess of the allowances of the supply table. Large reserve supplies were sent on the *Arizona* and the *Scandia*, which sailed late in August, to replenish the stores already sent. An additional supply was also placed on both ships in case they should be required to make the return voyage in the capacity of hospital ships.

The precautions taken to secure a good sanitary condition of the vessels prior to embarkation and the sanitary supervision exercised over the men during their long voyage must be credited with the excellent condition in which the troops arrived at Manila, for if any notable sickness had occurred on these vessels its presence would certainly have been announced in the press dispatches. I have received but few reports, as yet, from medical officers who accompanied this expeditionary force, but those which have come to hand give a most gratifying view of the conditions affecting the men while on board the

transports. During the attack on the Spanish lines at Manila, August 13, the field hospitals were established at Camp Dewey, 4 miles from the scene of action. All the wounded, 45 in number, were in hospital and comfortably cared for by 7 p. m. of that day.

The service of the division field hospital, Presidio of San Francisco, Cal., began June 2, 1898, at Camp Merritt, with tents for 48 patients. At this time serious cases, mostly complications of measles, were treated in various civil hospitals in San Francisco. The site of this camp was, as stated above, unsuitable. Its surface was a cold, damp sand, continually exposed to chilly winds and heavy fogs, which saturated the tents, clothing, and bedding of the men with moisture. On July 21 the hospital was moved to the Presidio, where two large brick barrack buildings and a few hospital tents constituted the accommodations. The ventilation was poor; water had to be carried from the lavatory, and the sewerage system, if not faulty, was at least inconvenient for hospital purposes. All necessary supplies and furnishings were promptly furnished by the chief surgeon of the department. A separate special diet kitchen, which gave satisfaction, was maintained. After the departure of the last Philippine troops on the *Scandia*, August 26, the hospital force consisted of 5 hospital stewards, 7 acting stewards, 73 privates of the Hospital Corps, 33 female nurses, and 10 Sisters of Charity, the capacity of the hospital at the time being 320 beds.

The ladies of the Red Cross Society of San Francisco established a convalescent hospital of 25 beds in a sheltered place at the Presidio, to which patients were transferred from the division hospital to recuperate before going on furlough or being returned to duty. The chief surgeon of the department testifies to the value of the assistance given by these ladies, not only as regards this hospital, but in feeding troops on their arrival and departure, and in providing clothing and delicacies for the sick in the camps, hospitals, and transports.

To complete this general review of the camp hospitals a further reference is needful to the history of the regimental hospitals. At first when regimental commands ceased to be separate commands, in becoming the constituent units of brigades and divisions preparatory to operations against the enemy, the regimental hospitals were disestablished to consolidate the working force of the Medical Department and Hospital Corps into division hospitals and ambulance companies. The objects in view were, first, to complete the field organization of the department and, second, to instruct untrained officers and men in their respective duties, so that when field service was undertaken the Medical Department would be efficient in rear of a marching or fighting command.

The want of hospital corps men was the main cause of the failure of chief surgeons to accomplish their purpose promptly. Instead of organizing for field service their time was occupied and their energies spent in endeavoring to procure the necessary men by enlistment or transfer. Instead of instructing for field service they had to instruct untrained men in caring for the ordinary percentage of sick in a healthy command. But after a time, when sickness invaded the camps and the division hospitals became filled, preparations for field service had to give place to the immediate necessity of caring for the sick. The division hospitals became expanded, as at Siboney and Tampa, into base hospitals with increased needs and increased responsibilities. To these I sent with the utmost dispatch medical officers and surgeons under contract, to relieve the straits of the medical officers attached to the troops, and trained nurses and medical attendants detached from the transports.

the regiments who were temporarily acting as hospital corps men. At Camp George H. Thomas, Chickamauga Park, Ga., the expansions of the division hospitals, under the conditions brought about by the typhoid invasion of the camps, became officially recognized as general hospitals and were promptly provided by me with the best available medical service, with trained nurses, with all permissible medical and hospital supplies, and with funds for special purchases.

The altered conditions under which the division hospitals were operating were immediately recognized by the chief surgeon of the Fifth Army Corps at Santiago on the breakdown of that corps after the surrender of the city, and the efforts of his medical officers to care for their sick locally were encouraged by giving them every available facility. The effect of this was seen in the camps at Montauk Point, Long Island, where regimental medical officers cared for many sick under hospital or line canvas, with details by regimental commanders as hospital attendants.

Similarly in other camps regimental hospitals were in many instances equipped to meet the necessities of the occasion. In view of the insidious progress of typhoid fever in infected individuals, febrile cases in the regimental camps required such close attention as could not be given when the men were scattered in quarters, and this called for hospital shelter and supplies. There were, therefore, in some of the camps regimental hospitals in which very serious cases were treated and in which deaths occurred, but these latter were few in number, as a transfer to the division hospitals was usually effected when the dangerous character of the disease became manifest.

The tabulation which I submit below does not include all the cases and deaths in the field hospitals, because medical officers have not in every instance rendered the required reports. The work, for instance, of the hospitals of the Second Army Corps is on this account not fully represented in the tabulation, and the reports for August from the command in the Philippine Islands have not been received. Were all the reports available that are due but not rendered the figures in this tabulation would be materially increased.

Besides this, the cases enumerated below do not represent all the men that were taken on sick report. They do not include the trivial cases that were treated in quarters, nor those cases of a serious character which were treated in regimental hospitals when the accommodations of the division hospitals were temporarily under strain. They do, however, include most of the cases that are tabulated (see p. 131) as admitted into general hospitals, for the majority of those admitted into the general hospitals passed through the division or other field hospitals en route.

Cases and deaths reported from field hospitals to September 30, 1898.

Army corps.	Location.	Cases.	Deaths.
First	First Division, Chickamauga Park, Ga.	261	25
	Second Division, Tampa, Chickamauga, and Knoxville	1, 827	32
	Third Division, Chickamauga Park and Lexington	998	35
	First Brigade, First Division, San Juan road, Porto Rico	267	6
Second	First Division, Camp Alger, Va.	893	6
	Second Division, Camp Alger, Va., and Thoroughfare, Va.	353	2
	Second Division, Camp Meade, Pa.	241	.....
	First Division, Chickamauga Park, Ga., and Anniston, Ala.	1, 818	52
Third	Second Division, Chickamauga Park, Ga.	2, 064	28
	First Division, near Mobile, Ala.	279	2
Fourth	Second Division, Fernandina, Fla., and Huntsville, Ala.	646	12
	Third Division, Fernandina, Fla.	226	2

Cases and deaths reported from field hospitals to September 30, 1898—Continued.

Army corps.	Location.	Cases.	Deaths.
Fourth	Field hospitals, Tampa.....	2,951	50
	Reception hospital, Picnic Island, Fla.....	39	3
Fifth	Field hospitals, Tampa.....	91	1
	Camp near Santiago, Cuba.....	890	116
	Siboney, Cuba, reserve division hospital.....	2,682	111
	Siboney, Cuba, yellow-fever hospital.....	549	46
	Montauk Point, Long Island.....	5,034	128
Seventh	First Division, Miami and Jacksonville, Fla.....	2,423	41
	Second Division, Jacksonville, Fla.....	2,013	58
	Third Division, Panama Park, Fla.....	636	10
Eighth	Division hospital.....	2,722	76
Separate camps.....	Camp Bushnell, Columbus, Ohio.....	231	.....
	Camp Black, Long Island, N. Y.....	163	.....
	St. Simons Island, Ga.....	48	1
	Target range, Waco, Ga.....	458	.....
	Fernandina, Fla. (Colonel Coates).....	122	.....
	Camp Hobson, Ga.....	799	5
	Total in field hospitals.....	33,044	826

GENERAL HOSPITALS.

Up to September 30, 11 general hospitals were established and fully manned and equipped. These had a capacity of nearly 7,000 beds. At the same time certain post hospitals having good accommodations were used for the treatment of army cases generally, without alteration of their official status as post hospitals. Those, for instance, at Forts Columbus, Hamilton, and Wadsworth, N. Y., in the East, and at the Presidio of San Francisco, Cal., and Vancouver Barracks, Wash., on the Pacific coast, were expanded in this manner. The vacant beds in the hospitals of the Marine-Hospital Service of the Treasury Department were placed at my disposal and the civil hospitals of the country were ready on call to receive and care for sick and wounded soldiers. These offers of hospital accommodations and medical care were accepted by me in many instances, particularly in New York, Boston, Philadelphia, and Providence to relieve the tent hospitals at Montauk Point when crowded by the rapid transfer of sick from Santiago.

1. *The Leiter General Hospital, Chickamauga, Ga.*—The building occupied was a summer hotel converted to hospital uses. It is a modern and apparently well-constructed building, well furnished throughout, heated by steam, and lighted by electricity. It is situated in 5 acres of ornamental grounds near Crawfish Springs, on a railroad direct from Chattanooga to Camp George H. Thomas. It was estimated to accommodate 175 patients, but cots for 30 convalescents were placed in the verandas, and two wards of 16 tents in all, with an occupancy of 80, were established in the grounds—total capacity, 285 beds. The water supply is pumped from Crawfish Springs into a distributing tank. The personnel of this hospital consisted of 14 medical officers, 38 members of the Hospital Corps, and 34 female nurses. Its kitchens, including special diet, are reported as excellent. The hospital was established June 6, 1898.

2. *General hospital, Key West, Fla.*—On April 20, 1898, the convent and two school buildings and grounds of the Sisters of Mary Immaculate, Key West, Fla., were turned over by agreement to the Medical Department of the Army for use as a hospital during the war. Cots with bedding for 500 patients were immediately forwarded, and the surgeon-in command was instructed to call for such supplies as were

needful. The post hospital at Key West Barracks afforded many desirable facilities for the establishment of the general hospital at this place. Frame buildings were erected on the convent grounds for use as isolation wards, earth closets, etc. A pesthouse for the treatment of yellow fever and smallpox cases was established in connection with the general hospital. The personnel consisted of 7 medical officers, 34 members of the Hospital Corps, 9 contract nurses, 23 sisters of the convent, and 29 employees, cooks, laborers, teamsters, etc.

3. *General hospital, Fort McPherson, Ga.*—This hospital may be said to have been established May 14, 1898, when a train load of patients from Tampa, Fla., was received for treatment. Certain of the barrack buildings of the post were used in connection with the wards and offices of the post hospital. On June 20 the accommodations were extended by the use of 35 hospital tents, and shortly afterwards 100 more tents were pitched on frames and floors for use. The number of available beds for patients is 922. The general mess hall of the post is used as a dining hall for convalescents, hospital-corps men, trained nurses, and employees. There are also 4 special diet kitchens, which suffice for the needs of those seriously sick. The personnel consists of 14 medical officers, 3 stewards, 5 acting stewards, and 112 privates of the Hospital Corps, with 2 hospital matrons, 71 female nurses, and 92 other civilian employees, cooks, waiters, and laborers. The patients were mostly derived from the camps at Tampa, Fla., but one train load was received from Chickamauga, Ga., and two from Fernandina, Fla., with a number of cases from the large body of recruits (2,000 to 3,800 men) aggregated at the post.

4. *The general hospital at Fort Monroe, Va.*—Orders were issued June 26 for the establishment of this hospital in connection with the post hospital of the fort. One hundred hospital tents were furnished by the Quartermaster's Department, cots and bedding for 500 patients by the Medical Department, and the surgeon in charge was directed to make requisition for other necessary supplies. The tents were pitched end on to each other in threes and fours, forming pavilion wards with streets between. They were raised from 1 to 2 feet above the surface of the ground, floored, framed, and raftered to give them stability, and connected with other parts of the hospital camp by a board walk. A frame building was erected for use as a kitchen and dining hall, the latter capable of seating 250 persons. Other buildings were constructed for use as water-closets and bath houses, the latter furnished with hot and cold water. Water from the post supply was conducted to all parts of the camp and a condensing plant provided a sufficient supply of distilled water for drinking. All sewage was delivered by sewers into the mains of the sewerage system of the post. This hospital was strengthened by the conveniences of the post hospital, including, besides its wards, an operating room, laboratory, dispensary, X-ray room, offices, special-diet kitchen, and storage rooms. The first patients were received July 13, 244 officers and men from the *City of Washington*, a transport from Santiago, Cuba. These were accommodated in the tent pavilions, but as the kitchen and mess hall building was yet unfinished, Buzzacott ovens under tent flies were used until July 18, when the hospital buildings were completed. This hospital received sick and wounded from the transports *City of Washington*, *Breakwater*, *Solace*, *Hudson*, *Obdam*, and *Lampasas* and from the camp at

Newport News, Va. The medical force attached to the hospital consisted of 15 officers, 2 stewards, 4 acting stewards, and 94 privates of the Hospital Corps, and 43 female and 11 male contract nurses.

5. *General hospital at Fort Myer, Va.*—On May 13, 1898, the Secretary of War approved my request to utilize the vacant barrack buildings of Fort Myer, Va., in connection with the post hospital at that place as a general hospital. The buildings were speedily fitted up and the hospital provided with all needful supplies. One building had to be erected as a deadhouse. The riding hall of the post was floored and converted into a ward for 175 patients. At each end of the riding hall, but detached from it, two water-closets were constructed for the disinfection and disposal of typhoid excreta. Water was brought into this hall, with two faucets at each end of the building, for use in filling tubs for baths. The hospital kitchens were supplemented by a Red Cross special-diet kitchen. The capacity of this hospital is 544. Most of the cases were derived from the Second Army Corps at Camp Alger, Va. The personnel consisted of 18 medical men, 2 stewards, 9 acting stewards, 67 privates of the Hospital Corps, 49 female and 12 male contract nurses, and 28 laborers.

6. *General hospital, Fort Thomas, Ky.*—On April 27 I requested authority to make use of the vacant barrack buildings at Fort Thomas, Ky., as a general hospital. This was granted, and I immediately sent 200 beds and bedding with instructions to the surgeon in command to make use of the quartermaster's bedsteads then in the barracks and to make requisition for the necessary personnel and supplies for active service in his hospital. The proposed establishment was intended as a reserve hospital, and patients were not sent to it until July 7. The number of available beds was 416. Ten medical men were on duty at this hospital, 1 steward, 3 acting stewards, 67 privates of the Hospital Corps, 33 female and 3 male contract nurses.

7. *General hospital, Washington Barracks, D. C.*—This hospital consisted of a tent hospital expansion of the hospital accommodations of the post. The tents were framed and floored; the boards of the flooring were waxed lightly before the cots were put in. Four medical officers were on duty at this hospital, with two stewards. No female nurses were employed, as the surgeon in command had a hospital-corps company of instruction to draw upon according to his needs.

8. *The Josiah Simpson Hospital, Fort Monroe, Va.*—This is a frame pavilion hospital of 1,000 beds, arranged en échelon, on the plans which gave the best satisfaction during the civil war, with an administration building, quarters for medical officers, hospital-corps men, male and female nurses, etc., and buildings for kitchens, dining rooms, storerooms, laundry, chapel, crematory, workshops, etc., all connected by covered board walks and lighted by electricity. Authority for the building and equipping of this establishment was granted by the Secretary of War, on my application of July 12, 1898. It was opened for the reception of patients in September.

The Sternberg and Sanger general hospitals in Chickamauga Park, Ga., and the Ponce general hospital, Porto Rico, have already been briefly described.

The post hospitals, which did duty as general hospitals during the war period, were chiefly six, although many others cared occasionally for sick and wounded men not members of the local garrison. The hospital building at each of these posts is in excellent condition. It formed the administration building of the extended hospital and provided commodious wards for cases of grave sickness. Fifty or more

tents with cots, bedding, etc., for 250 or more patients were sent to the surgeon in charge of each with orders to get in readiness for immediate service. These movements were instituted July 17-28. The tents were floored, framed, and pitched in pavilion wards, and prior to the reception of sick the personnel of the establishment was increased to meet the necessities of the case. At Fort Hamilton, for instance, there were assigned to duty 5 medical men under contract, 1 steward, 6 acting stewards, 24 Hospital Corps privates, and 4 male and 15 female contract nurses. Details made by the commanding officer from the troops in garrison did the policing and other heavy work of the extemporized hospital.

The appended tabulation summarizes the cases and deaths reported to September 30, 1898, from the general hospitals and the post and civil hospitals.

Cases and deaths reported from general, post, and civil hospitals to September 30, 1898.

Hospital.	Locality.	Cases.	Deaths.
General hospitals.....	Chickamauga, Ga. (Leiter General Hospital)	555	73
	Key West, Fla.	547	6
	McPherson, Fort, Ga.	1,342	63
	Monroe, Fort, Va.	1,218	31
	Myer, Fort, Va.	802	77
	Thomas, Fort, Ky.	519	30
	Washington Barracks, D. C.	753	5
	Total	5,736	285
Post hospitals	Columbus, Fort, N. Y.	338	12
	Hamilton, Fort, N. Y.	115	1
	Presidio of San Francisco, Cal.	1,194	33
	Vancouver Barracks, Wash.	314	1
	Wadsworth, Fort, N. Y.	475	.....
	Honolulu, Hawaiian Islands	54	1
	Total	2,490	48
Civil hospitals	Charleston, S. C., city hospital	118	8
	Charleston, S. C., St. Francis Xavier Hospital	83	4
	Key West, marine hospital, Fla.	5	.....
	Mobile, Ala., marine hospital	79	5
	New York civil hospitals	1,084	19
	Philadelphia civil hospitals	427	11
	San Francisco, Cal., marine hospital	100	14
	Stapleton, N. Y., marine hospital	106	.....
	Total	2,002	61
	Aggregate	10,228	394

THE MEDICAL STATISTICS OF THE WAR.

The work of gathering up the records of sickness of the various commands in service during the war has been one of great difficulty. Volunteer medical officers were ignorant of the methods of keeping their records, and many failed to appreciate the importance of what was frequently regarded as "mere paper work," which had no practical bearing on the welfare of their men. Notwithstanding repeated calls from this office and from chief surgeons, many regimental surgeons failed to report concerning their commands, even up to the time when the order was issued for their muster out. War Department instructions to mustering officers have recently succeeded in bringing in many reports of sick and wounded that would otherwise have probably never been rendered.

The work, however, of volunteer surgeons in this regard must be considered as satisfactory when compared with that of the volunteer medical officers of the war of the rebellion. In August, 1862, over four months after the President's call for 75,000 volunteers and five weeks after his call for 500,000 men, the medical reports represented a strength of only 109,054, in September 162,217, and in October 252,037, whereas in May, 1898, while many of the 275,000 men authorized as the war strength of the country had not yet been enlisted, medical reports representing 151,685 men were rendered.

It is to be noted, also, that the reports sent in during the recent war give a complete record of the individual cases, whereas the reports called for during the civil war were merely numerical, and specified the names of the affected soldiers only in the cases of death, discharge for disability, transfer to general hospital, etc. Thus, where a regimental surgeon of the civil war reported 15 cases of diarrhea, all ending in return to duty, the regimental surgeon of the present time reports of each case the name, rank, company, regiment, date of admission to sick report, complications, etc., and date of return to duty. Our present reports are therefore of much greater value for Pension Office purposes than were those of the civil war.

The following tabulations compiled from reports received up to October 25, 1898, are submitted to show the incidence of sickness and mortality on the troops during the five months, May 1 to September 30, 1898. The first presents the absolute number of admissions and deaths from typhoid fever, malarial fevers, diarrheal diseases, and from all causes, during each of the months, while the second gives the ratios per thousand calculated from these numbers.

Our medical officers have reported in full concerning 1,715 deaths,* of which number 640 were occasioned by typhoid fever, 97 by malarial fevers, and 39 by diarrhea and dysentery. The fact that the mean strength for September is only 130,763 shows that all the reports for that month have not as yet been received.

The table giving the ratios per thousand of strength enables comparisons to be made with facility. The death rates for May and June were not in excess of those of the Army in time of peace. In July the rate became somewhat higher than that of most well-cared-for cities, 2.15 for the month, or the equivalent of an annual rate of 25.80 per thousand living. In August it became excessive, 4.08 for the month, equal to an annual rate of 48.96 per thousand. In September the influence of the energetic measures taken in July and August to improve the health of the Army becomes manifest in the falling of the death rate to 2.45 or the equivalent of an annual rate of 29.40. The same progression to an acme in August, with a sudden fall in September is seen in the various ratios given under the specific titles typhoid fever, malarial fever, and diarrheal diseases. This is exceedingly gratifying, and must be credited, as stated, to the sanitary measures adopted, for our experience in the civil war demonstrates that in the absence of these measures the high ratio of August would have been continued for many months to come.

*Reports to the Adjutant-General to September 30, 1898, show 345 killed and died of wounds and 2,485 died of disease in a mean strength of 275,000 men.

Admission to sick report and deaths in the United States Army, May to September, 1898.

[Reported to October 25, 1898.]

Month.	Mean strength	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
May.....	151,685	10,208	70	60	8	565	.....	2,826	.....
June.....	159,793	24,339	112	414	14	3,120	.....	7,785	4
July.....	203,250	41,664	437	3,041	167	9,081	13	9,524	8
August.....	190,347	53,708	776	6,172	353	15,510	63	10,101	26
September.....	130,763	28,544	320	2,438	103	10,548	21	3,529	1
Total.....	167,168	158,460	1,715	12,125	640	38,833	97	38,715	39

Ratios per thousand of mean strength deduced from the numbers in the preceding tabulation.

Month.	Mean strength	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
May.....	151,685	67.30	0.46	0.40	0.02	3.72	.....	18.63	.....
June.....	159,793	152.32	.70	2.59	.09	19.53	.....	48.41	0.08
July.....	203,250	204.99	2.15	14.96	.82	44.68	0.06	46.86	.04
August.....	190,347	282.14	4.08	32.43	1.85	81.53	.33	53.07	.14
September.....	130,763	218.29	2.45	18.64	.79	80.67	.16	26.99	.008

I submit herewith for comparison with the statistics given above two tabulations from the records of the Medical and Surgical History of the War of the Rebellion. The first gives the absolute figures reported monthly by medical officers for the thirteen months, May, 1861, to May, 1862, inclusive; the second gives the ratios deduced from these numbers. Attention is invited, in the first place, to the relatively large number of admissions from all causes reported monthly during the civil war, and secondly to the high death rates. Even in May, June, and July, when the army consisted only of the 75,000 volunteers called out by the proclamation of April 15, 1861, the death rates were higher than during the first three months of our recent aggregation of more than three times as many raw troops. And these high death rates continued month after month, becoming higher as the new levies under the 500,000 call were gradually enrolled and became exposed to the insanitary conditions of the camps of that period. In November, 1861, the death rate was higher than that of the month of August last, which so alarmed the country and virtually broke up the army as a fighting machine. December, 1861, and January and February, 1862, had equally high death rates. Disease increased its ravages in March to 6.08, and in April, 1862, it reached its acme, with 3,331 deaths during the month out of a force of 395,703 men, or 8.42 deaths out of every thousand men, as compared with 4.08, the maximum monthly rate of the Spanish-American war.

Similar remarks might be made concerning the relative prevalence and mortality of typhoid and malarial fevers and diarrhea and dysentery, but what I have already said will suffice to direct attention to the points of interest in these tables.

Admissions to sick report and deaths in the United States Army, May, 1861, to May, 1862, inclusive.

	Mean strength.	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
1861.									
May.....	16,161	5,130	19	49	5	132	1	1,595	-----
June.....	66,950	22,587	99	197	15	1,079	-----	8,619	4
July.....	69,118	23,904	194	285	29	2,037	4	9,051	13
August.....	109,054	41,387	330	857	110	5,484	17	13,252	27
September.....	162,217	51,810	438	1,733	205	9,981	38	12,846	38
October.....	252,037	74,284	848	3,438	382	15,305	64	18,464	82
November.....	296,025	83,486	1,265	4,449	539	12,842	83	16,248	94
December.....	336,745	89,892	1,578	3,806	588	10,122	91	12,561	112
1862.									
January.....	343,572	85,081	1,664	3,180	480	6,458	66	12,727	69
February.....	316,568	68,847	1,515	2,862	446	5,759	60	9,842	56
March.....	314,961	64,468	1,915	1,984	495	5,353	61	14,366	79
April.....	395,713	106,075	3,331	3,867	785	11,586	96	33,626	159
May.....	388,492	95,724	3,077	4,393	1,092	14,354	90	33,020	231

Ratios per thousand of mean strength deduced from the numbers in the preceding tabulation.

	Mean strength.	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
1861.									
May.....	16,161	317.45	1.18	3.03	0.31	8.17	0.06	98.69	-----
June.....	66,950	337.87	1.48	2.94	.22	16.12	-----	128.74	0.06
July.....	69,118	345.84	2.81	4.12	.42	29.47	.06	130.95	.19
August.....	109,054	379.51	3.03	7.86	1.01	50.29	.16	121.52	.25
September.....	162,217	319.39	2.70	10.66	1.26	61.22	.23	79.18	.23
October.....	252,087	294.78	3.36	13.64	1.52	60.73	.25	73.25	.33
November.....	296,025	281.84	4.27	15.03	1.82	43.37	.28	54.89	.32
December.....	336,745	266.94	4.69	11.30	1.75	30.06	.27	40.33	.33
1862.									
January.....	343,572	247.63	4.84	9.26	1.40	18.80	.19	37.04	.20
February.....	316,568	211.16	4.79	7.46	1.41	18.19	.19	31.09	.18
March.....	314,961	204.69	6.08	6.14	1.57	17.00	.19	45.62	.25
April.....	395,713	268.06	8.42	9.77	1.98	29.28	.22	84.96	.40
May.....	388,492	246.39	7.92	11.31	2.81	36.95	.21	85.04	.59

I submit also tables of absolute numbers and of ratios by which the incidence of sickness and mortality of the regular and volunteer troops may be contrasted. From these it will be seen that the exposures of the regular troops during the Santiago campaign gave them from June to September a higher death rate than the volunteers, and that the rate of the latter during August, the month of maximum mortality, was 3.62, as compared with 5.89 among the regular troops:

Admissions to sick report and deaths in the United States Army, May to September, 1898.

[Reported to October 25, 1898.]

	Mean strength.	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
May:									
Regulars	46, 157	4, 244	15	29	2	205	.....	1, 411	.....
Volunteers	105, 528	5, 964	55	31	1	360	.....	1, 415	.....
June:									
Regulars	32, 887	3, 702	37	74	2	299	.....	872	1
Volunteers	126, 906	20, 637	75	340	12	2, 821	.....	6, 863	3
July:									
Regulars	40, 111	8, 684	163	697	39	1, 988	9	1, 606	2
Volunteers	163, 139	32, 980	274	2, 344	128	7, 693	4	7, 918	6
August:									
Regulars	38, 182	12, 089	225	1, 549	64	4, 283	19	2, 186	5
Volunteers	152, 165	41, 616	551	4, 623	289	11, 236	44	7, 915	21
September:									
Regulars	27, 082	10, 682	82	619	35	5, 154	7	1, 243	.....
Volunteers	103, 681	17, 862	238	1, 819	68	5, 394	14	2, 286	1
Total:									
Regulars	36, 884	39, 401	522	2, 968	142	11, 929	35	7, 318	8
Volunteers	130, 284	119, 059	1, 193	9, 157	498	26, 904	62	26, 397	31

Ratios per thousand of mean strength deduced from the numbers in the preceding tabulation.

	Mean strength.	Total admissions.	Total deaths.	Typhoid.		Malarial.		Diarrheal.	
				Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
May:									
Regulars	46, 157	91.95	0.32	0.63	0.04	4.44	.....	30.37	.....
Volunteers	105, 528	56.52	.52	.29	.01	3.41	.....	13.41	.....
June:									
Regulars	32, 887	112.58	1.13	2.26	.06	9.04	.....	26.52	0.03
Volunteers	126, 906	162.62	.59	2.68	.10	22.23	.....	54.08	.03
July:									
Regulars	40, 111	216.50	4.06	17.38	.97	49.56	0.22	40.04	.05
Volunteers	163, 139	202.18	1.68	14.37	.79	43.47	.03	48.51	.04
August:									
Regulars	38, 182	316.62	5.89	40.57	1.68	112.17	.50	57.25	.18
Volunteers	152, 165	273.49	3.62	30.38	1.90	73.85	.29	52.02	.14
September:									
Regulars	27, 082	394.43	3.03	22.86	1.29	190.31	.26	45.90	.....
Volunteers	103, 681	172.28	2.30	17.54	.66	52.02	.14	22.05	.01
Total:									
Regulars	36, 884	1, 068.24	14.15	80.47	3.85	323.42	.95	198.40	.23
Volunteers	130, 284	913.84	9.16	70.28	3.82	206.50	.48	202.61	.24

VOLUNTEER RELIEF WORK.

My attitude toward relief organizations is shown by an indorsement dated May 5 upon a letter addressed by Rev. Henry C. McCook, of Philadelphia, to the President and referred to me for remark:

MAY 5, 1898.

Respectfully returned to the Adjutant-General of the Army.

The plan proposed for the organization of a relief association appears to have been well considered, and the object in view will commend itself to every patriotic citizen. But it is a question whether the President should give special privileges to any particular organization. Other prominent individuals in different parts of the country may be organizing for the same purpose. One such proposition has come to me from Chicago. While I approve in a general way of organization for the relief work proposed, it appears to me that it will be best not to give in advance exclusive privileges to any one particular organization. In case of need assistance should be accepted from any organization prepared to give it.

This has been my guiding principle throughout, that relief when needed should be promptly accepted without reference to the source from which it comes. The relief afforded by the National Red Cross at Siboney was promptly accepted by the surgeons on the spot, but it is evident that it was entirely inadequate to meet the emergency.

A committee of the American National Red Cross Association called upon me in my office in Washington some time in advance of the landing of our troops in Santiago, making an offer of assistance. I received them most courteously and advised them to use their resources in fitting up a hospital ship, telling them that a hospital ship was now being fitted up for the use of the Medical Department, but that it was not at all improbable that an emergency would arise which would overtax our resources, and that in such an event a hospital ship properly equipped, having on board a corps of doctors and nurses, would be a most valuable auxiliary.

The American National Red Cross Association has had full authority to send agents and supplies to all our camps since June 9, 1898.

The following letter was sent by me to every chief surgeon of a department or independent army in the field on June 9, 1898:

The Secretary of War has approved of the following proposition made by the American National Red Cross Association, and the chief surgeons of army corps and divisions will cooperate with the authorized agents of this association for the purpose indicated.

"We can put any desired amount of hospital supplies—ice, malted milk, condensed milk, Mellin's food, etc.—into any of the volunteer camps in a few hours. Will you be kind enough to bring this letter to the attention of Secretary Alger and ask him if there is any objection to our appointing a Red Cross representative to report to the commanding officer and the chief surgeons in every camp, confer with them as to their immediate needs, and, if anything of any kind is wanting, open there a Red Cross station and send in the supplies. We can do this, not in a few weeks or a few days, but in a few hours, and can furnish any quantity of any desired luxury or delicacy for hospital use. We hereby tender our aid and put our organization at the War Department's service for cooperation in this field."

In accordance with their promise the American National Red Cross Association has had agents in all of our principal camps and has contributed supplies of various kinds in a most liberal manner for the use of our field hospitals. The value of the assistance rendered by them has been highly appreciated by medical officers generally. Other organizations which have rendered very valuable services are the National Relief Commission, having its headquarters in Philadelphia, and the Massachusetts Volunteer Aid Association, with headquarters in Boston. Both of these organizations fitted out hospital ships, which were placed at my service for the transportation of our sick from Porto Rico, and I take pleasure in testifying to the valuable services rendered by the yacht *May*, of the National Relief Commission, and the hospital ship *Bay State*, of the Massachusetts Volunteer Aid Association.

SPECIAL FUND.

Sums of money, varying from 33 cents, sent by Master Oliver S. Whitaker, of Detroit, Mich., to \$5,000, by Mr. Cleveland H. Dodge, chairman of the supply committee, National Red Cross Society, have been sent to me to be used according to my discretion for the benefit of our sick and wounded soldiers. In all, I have received \$24,244.94. The largest contributors have been: The Colonial Dames of America, through the treasurer, Miss E. B. Nicholas, of Washington, D. C., \$3,500. The Red Cross Society, through Mr. Cleveland H. Dodge,

chairman supply committee, \$5,000. The Red Cross Auxiliary, No. 3, through Mrs. Winthrop Cowdin, of New York, \$2,000. The Women's War Relief Association, through Mrs. Victoria Raymond, treasurer (contributed for hospital ship *Relief*), \$2,275. The Colonial Dames of New York State, through Mrs. Mary J. Chauncey, secretary, \$500. The War Emergency Relief Board, Cleveland, Ohio, through Mrs. K. V. Painter, \$600. The Blue Anchor Society of New York, through Miss Alice Sandford, \$250. The Rhode Island Sanitary Relief Association, of Newport, \$500. The Society of "Spinners," through Mrs. Harriet T. Thorne, Bridgeport, Conn., \$300. The Women's Aid Society, of Rhode Island, through Mrs. Wm. M. Greene, \$600. The Brooklawn Country Club, through Mr. Charles Sherwood, of Bridgeport, Conn., \$110.50. The ladies of Jersey City, through Mrs. James H. Noe, \$600. Mrs. Jonathan Thorne, of Bridgeport, Conn., \$300. The General Council of Colonial Wars, of Philadelphia, \$1,200. The Daughters of the Revolution, of Wheeling, W. Va., through Mrs. R. M. Baird, \$60. The Martha Washington Chapter, Daughters of the American Revolution, New York City, \$335. The Spanish and Portuguese Congregation and Sisterhood of Shearith Israel of New York City, through Mr. Albert J. Elias, \$494. Women's Relief Corps, Yankton, S. Dak., through Mrs. S. Nevada Hereford, \$50. The Ohio National Women's Relief Corps, through Mrs. I. T. Bagley, of Zanesville, \$700. Mrs. Robert Patterson, Chicago, Ill., \$100. Mrs. Courtland Hoppin, Pomfret Center, Conn., \$125. Dr. Annie H. Pierce, Perry, N. Y., \$125. Sale of bale of cotton at New York, Boston, Chicago, St. Louis, and Kansas City, \$2,261. W. J. A. Bliss, Lynton, England, \$100. Mr. I. I. Bergen, Mountain Lake, Minn., \$76.14. Mrs. Kate A. Wolf, Bordentown, N. J., \$60. Mrs. Paula Bronson, Summit, N. J., \$76.41. Mrs. Imogene Granbery, Lotus Lodge, Essex County, N. Y., \$100. Miss Louise Hoppin, \$380.

This money has been sent by me principally to general hospitals, to chief surgeons of army corps in the field, and to commanding officers of hospital ships, for use in the purchase of delicacies for the sick.

THE MEDICAL CORPS.

Before concluding my report of the operations of the Medical Department during our short and glorious war with Spain I feel it my duty to call special attention to the efficient services rendered by the medical officers of the Army in the various responsible positions which the exigencies of the service have made it necessary for them to fill. The inadequacy in the number of trained and experienced medical officers has been very evident and has been a source of great embarrassment to me in my efforts to meet the demands of the service; but, as a rule, our medical officers have performed the duties imposed upon them in a most loyal, intelligent, and zealous manner. They have shared with line officers the dangers of battle, and they have encountered with unflinching courage the more difficult and protracted combat with the infectious diseases which have invaded our camps and filled our hospitals. Many of them have suffered attacks of typhoid and malarial fevers, and at one time no less than 15 per cent of the corps was disabled by sickness. Of those who accompanied General Shafter's army to Santiago very few escaped serious sickness, and two of those who distinguished themselves for devotion to duty lost their lives as a result of exposure to the malign

influences which in so short a time sapped the vitality of the flower of the American army during the operations in the vicinity of Santiago. But credit is due not alone to those in the field. The labors of those on duty as chief surgeons of military departments and in charge of medical-supply depots have been enormously increased and it has required unremitting effort to meet the exigencies of the war. One officer, Lieut. Col. J. V. D. Middleton, deputy surgeon-general, has been called upon to do the double duty of chief surgeon of the Department of California and medical-supply officer at San Francisco. He has had the responsible duty of supplying the troops going to Manila, and has acquitted himself to my entire satisfaction as was to have been expected of an officer of his intelligence and experience.

Col. Charles H. Alden, assistant surgeon-general, has been next to me in responsibility, as he is in rank in the Medical Department. During the five years that he has been my principal assistant he has distinguished himself by his indefatigable industry, familiarity with all that pertains to the administration of the Medical Department, and conscientious devotion to duty. During the greater part of the war, as previously, he has had general charge of two of the most important divisions in my office—that pertaining to the purchase and issue of supplies and the hospital corps division.

The sanitary division has for many years been under the charge of Lieut. Col. Charles Smart, deputy surgeon-general, who is a recognized authority upon hygiene, sanitary chemistry, and army sanitary statistics. I can not speak too highly of his zealous and intelligent performance of the responsible duties connected with this branch of the medical service. But in addition to this he has acted as a disbursing officer, as a sanitary inspector on several occasions, and has been charged with various other important duties.

Col. Joseph P. Wright has been in charge of the medical-supply depot in St. Louis, and Lieut. Col. J. M. Brown, deputy surgeon-general, of that in New York. The demands upon these supply depots have called for the most unremitting labor, and the results accomplished under the most difficult conditions entitle these officers to special commendation.

The medical officers selected to take charge of our general hospitals and hospital ships have all distinguished themselves by their intelligent devotion to their responsible duties.

The duties imposed upon Maj. Charles Richard, who has had charge of the hospital train, have been especially important and arduous, and have been performed in a manner most creditable to him and to the medical corps. Although nearly 3,000 cases have been taken by this train from field hospitals in the camps to our general hospitals, not a word of complaint from any source has reached me with reference to this transportation service.

The chief surgeon of the army in the field, Col. Charles R. Greenleaf, assistant surgeon-general, United States Army, and the chief surgeons of the several army corps have been unremitting in their efforts to organize an efficient medical department for active military operations; but, as was to have been expected, this proved to be a task requiring both time and patience. The result has, however, been all that could have reasonably been expected when the difficulties encountered are taken fully into consideration. The amount of sickness from diseases classed by sanitarians as "preventable" has been excessive, but the conditions which have led to the wide prevalence of these diseases in our camps of instruction have been to a large extent met by the Medical Department, which has, nev-

ertheless, heroically and successfully met the difficult task of caring for a large number of seriously sick soldiers in field hospitals. The care of the sick in the field and in hospital and the administration of medical affairs in our camps has been to a large extent in the hands of the enlarged Medical Department, resulting from the organization of a volunteer army. Many of the division and brigade surgeons appointed by the President upon my recommendation and a considerable proportion of the regimental surgeons have proved themselves to be well qualified for the important duties devolving upon them, and after a few months' experience in camp have acquired a satisfactory knowledge of matters pertaining to army administration, camp sanitation, etc., which for a medical officer are quite as important as his professional qualifications.

Before closing this report I desire to call attention to the patriotic devotion to duty of the clerical force of the Surgeon-General's Office, and especially to the efficient services rendered by Mr. George A. Jones, chief clerk, and other clerks in charge of the principal divisions in my office. The enormous increase in the amount of work to be done as a result of the war, and the want of experience on the part of clerks temporarily employed to meet the emergency, has made it necessary for a considerable number of our most experienced clerks to remain at their desks until long after office hours, and often to return to their work in the evening. This they have done cheerfully and without complaint, and as a result the work of my office has not at any time fallen behind to any considerable extent.

RECOMMENDATIONS.

The increase of the enlisted strength of the Army to a total of 60,000, and the large number of new stations to be garrisoned in the islands acquired and occupied by the United States, makes an increase in the Medical Corps absolutely essential. I therefore recommend an addition to the number of medical officers now allowed by law of 2 assistant surgeons-general with the rank of colonel, 6 deputy surgeons-general with the rank of lieutenant-colonel, 30 surgeons with the rank of major, and 50 assistant surgeons with the rank of first lieutenant.

This recommendation is based upon the present organization of the Army. Any increase made by Congress during the coming session will necessitate a further increase of the Medical Corps.

REPORTS AND PAPERS.

Lastly, I invite attention to certain circulars issued by me and to reports and papers rendered by medical officers which illustrate the work of the Medical Department and the many difficulties under which it was accomplished:

CIRCULARS FROM THE OFFICE OF THE SURGEON-GENERAL OF THE ARMY.

[Circular No. 1.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, April 25, 1898.

In time of war a great responsibility rests upon medical officers of the Army, for the result of a campaign may depend upon the sanitary measures adopted or neglected by commanding generals of armies in the field. The medical officer is responsible for proper recommendations relating to the protection of the health of troops in camp or in garrison, and it is believed that, as a rule, medical officers

of the United States Army are well informed as to the necessary measures of prophylaxis and the serious results which infallibly follow a neglect of these measures, especially when unacclimated troops are called upon for service in a tropical or semitropical country during the sickly season. In Cuba our armies will have to contend not only with malarial fevers and the usual camp diseases—typhoid fever, diarrhea, and dysentery—but they will be more or less exposed in localities where yellow fever is endemic and under conditions extremely favorable for the development of an epidemic among unacclimated troops. In view of this danger, the attention of medical officers, and of all others responsible for the health of our troops in the field, is invited to the following recommendations:

When practicable camps should be established on high and well-drained ground not previously occupied.

Sinks should be dug before a camp is occupied, or as soon after as practicable. The surface of fecal matter should be covered with fresh earth or quicklime or ashes three times a day.

New sinks should be dug and old ones filled when the contents of the old ones are two feet from the surface of the ground.

Every man should be punished who fails to make use of the sinks.

All kitchen refuse should be promptly buried and perfect sanitary police maintained.

Troops should drink only boiled or filtered water and coffee or tea (hot or cold), except where spring water can be obtained which is pronounced to be wholesome by a medical officer.

Every case of fever should receive prompt attention. If albumen is found in the urine of a patient with fever it should be considered suspicious (of yellow fever), and he should be placed in an isolated tent. The discharges of patients with fever should always be disinfected at once with a solution of carbolic acid (5 per cent) or of chloride of lime (6 ounces to gallon of water), or with milk of lime, made from fresh quicklime.

Whenever a case of yellow fever occurs in camp, the troops should be promptly moved to a fresh camping ground located a mile or more from the infected camp.

No doubt typhoid fever, camp diarrhea, and probably yellow fever are frequently communicated to soldiers in camp through the agency of flies, which swarm about fecal matter and filth of all kinds deposited upon the ground or in shallow pits, and directly convey infectious material, attached to their feet or contained in their excreta, to the food which is exposed while being prepared at the company kitchens or while being served in the mess tent. It is for this reason that a strict sanitary police is so important. Also because the water supply may be contaminated in the same way, or by surface drainage.

If it can be avoided, marches should not be made in the hottest part of the day—from 10 a. m. to 5 p. m.

When called upon for duty at night or early in the morning, a cup of hot coffee should be taken.

It is unsafe to eat heartily or drink freely when greatly fatigued or overheated.

Ripe fruit may be eaten in moderation, but green or overripe fruit will give rise to bowel complaints. Food should be thoroughly cooked and free from fermentation or putrefactive changes.

In decidedly malarious localities, from 3 to 5 grains of quinine may be taken in the early morning as a prophylactic, but the taking of quinine as a routine practice should only be recommended under exceptional circumstances.

Light woolen underclothing should be worn, and when a soldier's clothing or bedding becomes damp from exposure to rain or heavy dews the first opportunity should be taken to dry it in the sun or by fire.

[Circular No. 3.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, D. C., May 18, 1898.

For the information of chief surgeons in organizing the medical department and hospital corps of their commands, the following, relating to the duties of medical officers in the field, is published.

Duties of chief surgeons of corps.—The chief surgeon of a corps is held responsible for the proper and effective management of the medical service of the command.

He should keep a register of the medical officers and hospital corps, making assignments and issuing orders and instructions with the approval of and "by

order" of the Major-General Commanding, if authorized to do so. He should make himself acquainted with the sanitary conditions affecting the troops, the efficiency of the field hospitals and of the ambulance companies, and should call for weekly reports of sick and wounded and of the personnel and means of transportation of the hospital corps. All reports and papers not requiring special action should be checked off and receive the stamp of his office before transmittal. Such papers include personal reports of medical officers, monthly reports of sick and wounded, of the hospital corps and of the hospital fund, and sanitary reports from chief surgeons of brigades and division s; also the lists of wounded called for after an engagement. A copy of the action taken on all papers referred to him or forwarded by him should be made in an indorsement book. Such papers include those relating to resignations, leave of absence, or discharge on account of disability, requisitions for medical and hospital and hospital corps supplies, and all recommendations or complaints referring to the medical service or affecting the health and well-being of the troops. Copies of orders and letters should be made and placed on file, and all circulars and orders from the Surgeon-General or the Chief Surgeon of the Army should be published without delay to the chief surgeons of divisions.

Prior to a movement, the chief surgeon should verify, by personal inspection, the condition of the hospitals and of the hospital corps companies and their trains, and should make all the arrangements needful for the probable exigencies of the campaign. He should see that the assignments by chief surgeons of divisions to positions on the operating staff of the field hospitals include the best surgical skill of each division. On the march, he should accompany the staff and acquaint himself with the topography of the country; and when an engagement is imminent he should indicate to chief surgeons of divisions the localities best suited for the establishment of the field hospitals. He should inspect these from time to time, and exercise general supervision over the first aid and ambulance stations and the movement of the wounded to the hospitals. He should also supervise the movement of sick and wounded to the base or general hospitals, providing transportation and detaching medical officers and attendants for their care. When absent on such duties he should leave a competent medical officer with the staff to represent him and to inform him of important changes in the military conditions. The Commanding General should be kept informed of the work of the Medical Department, and should always be consulted in matters of importance.

Duties of chief surgeons of divisions.—The chief surgeon of a division supervises the medical and hospital corps service of the division. He should transmit official reports and papers, with the stamp of his office if routine in character, or with his views indorsed thereon if the subject appears to call for this action. He should have frequent personal communication with the chief surgeon of the corps, and should endeavor to carry out the views of the latter on behalf of the troops. His usual position is with the staff, but he should make frequent visits to the division hospital and the ambulance company, to oversee their work. He should detail one medical officer in rotation as officer of the day, who, on the march, should keep him informed of any noteworthy occurrence, and who, in camp, should visit each regiment of the division to report on its hygienic and sanitary conditions. Before an engagement he should see that the field hospital is properly established and that the operating surgeons and their assistants are at their proper stations. During and after the engagement he should supervise the movement of the wounded from the ambulance stations to the hospitals.

Duties of chief surgeons of brigades.—The chief surgeon of a brigade is the adviser of the brigade commander in all medical and sanitary questions concerning the command. He should call for a weekly (or daily, as may be required) report of sick and wounded from regimental surgeons, and of the detailed members of the hospital corps on duty with them. He should forward the formal reports of these surgeons, and promulgate orders from brigade and higher authorities. He should keep careful watch over the health of the brigade, reporting in writing from time to time, as may be required, and consulting in emergencies with the chief surgeon of the division. During and after an engagement he should supervise the work at the first-aid stations and the removal of the wounded to the ambulance stations, unless on account of his superior ability, he has been assigned to duty at the operating tables, in which case a competent officer should be detailed to represent him temporarily on the staff of the brigade.

Duties of regimental surgeons.—The regimental surgeon is in sanitary matters the adviser of the regimental commander. On the march and in camp he should examine the sick with a view to their proper treatment and disposition. He is responsible for any unexpendable medical and hospital property issued for the use of the regiment. His supplies of medicines, etc., should be renewed by requisition

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on the surgeon in charge of the hospital. Members of the hospital corps on duty with the division are detailed to duty with him. Daily, after sick call, he should send a morning report of sick and wounded and of the hospital corps to the regimental commander, with a duplicate to the chief surgeon of the brigade. He should keep, as a register of sick and wounded, a retained copy of the monthly report forwarded through the offices of chief surgeons to the Surgeon-General; cases treated in the division field hospital should be borne on this report as so treated. He should forward monthly or when his official station has been changed a personal report on a memorandum slip. After every engagement a list of wounded of the command should be forwarded. If the regimental surgeon is, by order of the chief surgeon, placed on temporary special duty, the senior medical officer with the command will perform the duties of the regimental surgeon. During an engagement he should serve at the first-aid stations.

Duties of surgeons in charge of division hospitals.—The surgeon in charge of a division hospital is responsible for the care of the sick and wounded on the march and in camp, and for the comfort and general welfare of the wounded when brought to the hospital by the ambulance service. He should direct the unpacking of the wagons for the establishment of so much of the hospital as may be necessary, and the subsequent repacking when the march is to be resumed. He should superintend the admission, return to duty, or transfer to base hospitals of his patients. As commanding officer of the hospital corps detachment he should keep the accounts of the enlisted men on duty at the hospital. He should make timely requisition for medicines, medical and hospital stores, supplies and property, for the care, expenditure, and use of which he is held responsible. He should supply regimental and other medical officers of the division with such articles as may be required and are available for the treatment of the sick. He should send a daily report of sick and wounded and of the hospital corps to the chief surgeon, and transmit to the Surgeon-General similar reports for the month, with a statement of the hospital fund. After an engagement he should forward lists of wounded, and on sending patients to base hospitals he should furnish transfer lists to the senior surgeon accompanying them. Medical officers may be assigned to assist him in the management of the hospital. One of these should act as executive officer, aiding the surgeon in charge in the work of supervision, and having special charge of the records. Another should superintend the cooking and diet of the hospital, drawing rations from the Subsistence Department, and issuing them for use and keeping the accounts of the hospital fund. He should also have special charge of the hospital stores, and of such articles of property as are connected with the cooking and serving of food. Others should be assigned as attending surgeons to care for the sick on the march and in camp, and during an engagement to look after the management of the wards, and to make notes of operative procedures, deaths, and of the progress of cases for subsequent report to the surgeon in charge and entry on the records of the hospital.

Duties of medical officers in command of ambulance companies.—The medical officer, in command of the ambulance company is charged with the care of the pay, clothing, and subsistence of his men, and is held responsible for the care of ambulances and other wagons, tents, horses, mules, forage, etc. His subaltern officers assist him in the discharge of these duties. During and after an engagement he is responsible for the safe and speedy transportation of the wounded on litters and in ambulance wagons from the field to the hospital by way of the first-aid and ambulance stations, which latter he should organize.

Medical officers of the Volunteer Army should make themselves familiar with the provisions and requirements of the Manual for the Medical Department, the paragraphs of Army Regulations relating to the Medical Department, the Drill Regulations for the Hospital Corps, and the chapters in Part I of the Handbook for the Hospital Corps, by Deputy Surg. Gen. Charles Smart.

[Circular No. 4.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, May 31, 1898.

The Quartermaster-General has been authorized to provide filters for the use of the Army. The filters recommended by the Surgeon-General are the Berkefeld cylinder and the Maignen asbestos filter. These filters are intended to supplement each other, and the use of both is required to obtain a plentiful supply of water free from the germs of disease. company officers should

have a thorough understanding of the intention and action of each of these filters, that the full benefit of their use may be insured to the troops.

The Berkefeld filter is a specially prepared earthenware cylinder, through the pores of which the water has to be forced by the exercise of considerable piston pressure. The pores are so small that they exclude or filter out, not only all particles which would give a turbidity or cloudiness to the water, but those more minute particles which are the active agents in the production of typhoid fever and other camp diseases. The filter is, therefore, an efficient filter, but the smallness of the pores which gives it its efficiency constitutes an objection to its use in practice. Its pores speedily become choked by a coating of filtered particles. If greater pressure be used to increase the rapidity of filtration, the connections of the cylinder may become strained and the filter be rendered valueless, while if the cylinder be removed and its surface scrubbed, it is exposed to the risk of fracture unless handled with the utmost care.

The Maignen asbestos filter has larger pores than the other. Water passes through it more readily and under slight pressure. The coarser particles which give a cloudiness or turbidity to a water are strained out, but as the germs of disease are not excluded, the filtration from a sanitary point of view is not efficient.

It will be seen, however, that the Maignen filter may be put advantageously to use in preparing water for purification by the Berkefeld cylinder. By straining out the particles which otherwise would choke the Berkefeld filter, it enables the latter to operate as rapidly as itself and does away with the necessity for increased pressure or frequent interruptions for scrubbing the porous cylinder.

To use the two filters in combination, the bucket or other receptacle containing the unfiltered water and the asbestos filter should be securely fixed at a height of 5 or 6 feet from the ground. From this bucket, the clear but not necessarily pure water is delivered by the rubber tube of the filter into another bucket properly placed to receive it, and to admit of the pumping of the filtered water through the Berkefeld cylinder into vessels for storage or use.

It has been found that asbestos-filtered water can be rendered sterile by the Berkefeld apparatus at the rate of about 5 gallons in twelve minutes, the pump working easily.

The outer covering of the Maignen filter should be kept free from deposits of clay or other matters by brushing or scrubbing. If need be, the outer casing of asbestos cloth may be removed, washed, and replaced. The filter as a whole may be sterilized when necessary by boiling in water. When not in use it should be exposed to the air as much as possible.

The Berkefeld filter is worked by placing the pump in the vessel containing the asbestos-filtered water, with its nozzle resting firmly on the bottom. The piston is then worked without jerking, while counter pressure is made with the left hand on the top of the barrel. To keep the cylinder in perfect condition, when thus used, it should be sterilized every fourth day. The thumbscrews on top should be unloosed, and the cylinder, having been lifted carefully from its metal case, should be put in water of ordinary temperature, which should be brought to the boiling point and kept at this temperature for five minutes. When removed from the hot water it should be allowed to cool before being replaced for use. The cylinder is liable to become cracked and useless by sudden changes of temperature. If a cracked or worn-out cylinder has to be replaced, the small wheel should be unscrewed from the lower end of the old cylinder and screwed upon the new one. The nut at the bottom of a cylinder should never be unscrewed.

[Circular No. 5.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, August 8, 1898.

The attention of medical officers is invited to Circular No. 1 from this office, dated Washington, April 25, 1898.

The extensive prevalence of typhoid fever in camps of instruction indicates that the sanitary recommendations made in this circular have not been carried out. If medical officers have failed to make the proper recommendations as indicated, the responsibility rests with them. If the recommendations have been made and not acted upon by those having authority in the various camps, the responsibility is not with the Medical Department, but these recommendations should be repeated and commanding officers urged to move their camps at frequent intervals and to maintain a strict sanitary police.

[Circular No. 6.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, August 12, 1898.

Chief surgeons of army corps, of divisions, and of smaller independent commands are expected to make timely requisition for medical supplies. It must be remembered that some delay is often unavoidable in putting up supplies at the supply depots and in their transportation to the point at which they are needed. In an unexpected emergency telegraphic requisition must be made and supplies will be sent by express; but it must be remembered that this mode of transportation is very expensive and that failure to make requisition in advance of immediate needs entails unnecessary expense upon the Government. Division and field hospitals in which typhoid fever and other serious cases are treated should be liberally supplied with all articles necessary for the treatment and comfort of the sick. The field supply table applies only to mobile commands and division hospitals to accompany them on short notice.

[Circular No. 7.]

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
Washington, September 5, 1898.

The attention of chief surgeons and of all medical officers on duty with troops in the field is called to the following paragraphs from the Manual for the Medical Department:

"92. When accumulations of organic material undergoing decomposition can not be removed or buried, they may be treated with an antiseptic solution or with freshly burned quicklime. Quicklime is also a valuable disinfectant, and may be substituted for the more expensive chloride of lime for disinfection of typhoid and cholera excreta, etc. For this purpose freshly prepared milk of lime should be used, containing about 1 part, by weight, of hydrate of lime to 8 of water.

"93. During the prevalence of an epidemic, or when there is reason to believe that infectious material has been introduced from any source, latrines and cess-pools may be treated with milk of lime in the proportion of 5 parts to 100 parts of the contents of the vault and the daily addition of 10 parts for 100 parts of daily increment of feces."

Quicklime should be purchased in such quantities as may be necessary for the purpose of carrying out these instructions, and vouchers sent to the Surgeon-General of the Army for payment from the medical and hospital appropriation.

REPORT OF OPERATIONS OF THE MEDICAL DEPARTMENT AT SANTIAGO, CUBA,
 AND IN PORTO RICO, BY COL. CHARLES R. GREENLEAF, CHIEF SURGEON ARMY
 IN THE FIELD.

[Dated August 24, 1898.]

Leaving Charleston, S. C., on the 8th of July, 1898, by the U. S. S. *Yale*, we found on board the Sixth Massachusetts Volunteers and one company of the Sixth Illinois, with General Garretson's brigade headquarters, these troops having previously been at Camp Alger. During the voyage to Cuba a number of cases of typhoid fever developed. They were as well taken care of as circumstances would permit, under the direction of Maj. George W. Crile, brigade surgeon of volunteers.

Arriving at Siboney, Cuba, twenty cases were sent during my absence from the ship, by order of Captain Wise, of the Navy, and transferred to the steamship *Seneca*, to be sent north.

It was at once reported to me that yellow fever had made its appearance among the troops in Cuba, and I proceeded to the shore to investigate the matter. I found that immediately upon landing the troops had occupied all the houses in the little town of Siboney, and along the line of march into the island had also occupied blockhouses or native huts without taking any measures for their disinfection or fumigation; they had also been brought in contact with refugees from Santiago.

Prior to leaving the United States I had drawn up very carefully, after consultation with Dr. Guiteras, the yellow-fever experience, a system of preventive measures to be put in force as soon as we landed; this was

communicated to the chief surgeon of the Fifth Corps. Having been informed by the officers of the Jaragua Iron Company, located at Siboney and Daiquiri, that the buildings occupied by their operatives had during each year been inhabited by persons with yellow fever, explicit directions were given to destroy by fire immediately after landing every building at this place and on the line of march of the troops. These directions were, at my suggestion, telegraphed from Washington by General Miles to the commanding general of the Fifth Army Corps. A small yellow-fever hospital and a camp of detention close to the borders of the town had been established before our arrival, but the large number of nonimmunes continually coming into the town and entering these infected buildings was rapidly adding to the number of these infected cases. I therefore, by authority of the general commanding, proceeded to have every building in the town that had been occupied as habitations destroyed by fire, hoping that by this action the source of infection at this place would be removed and a sufficient surface of sterilized ground obtained for the location of a large camp of detention. It became apparent within a few days that the entire army had become infected, as the reports from medical officers showed that every organization furnished one or more cases. I accordingly recommended the immediate removal of such troops as could be moved without detriment to the military situation, and after the capitulation recommended the removal of the entire army from the trenches, either towards Santiago, making fresh camps every second day, or backward into the mountains, and in the event of failure to stamp out the disease by this method, to ship the army as rapidly as possible back to the United States. To all these recommendations General Miles gave his cordial assent, and promptly issued the necessary orders.

I was much embarrassed in taking care of the sick by the lack of nurses and proper guards, and applied twice to the general commanding the Fifth Army Corps for troops to perform this duty, but he declined to furnish them; on my appeal to General Miles, however, he promptly ordered the whole of the Twenty-fourth Infantry to report to me for duty. This regiment made a night march, arriving at Siboney early the next morning; the necessity for aid was so urgent that I requested the commanding officer to call for volunteers from that regiment to serve in the yellow-fever hospitals; this request brought forth a prompt response, more than twice the number of men required volunteering for this perilous duty. I desire to bring to the notice of the General Commanding the Army the conduct of these men; the cheerfulness with which they did their duty under the most adverse circumstances, and the promptness with which they volunteered for any service with the sick deserves in my opinion a special commendation.

The hospital accommodations at Siboney were very limited owing to a lack of tentage. The number of medical officers for duty with the sick was inadequate, and the quantity of medical supplies on shore was insufficient; the reasons for this were a depletion of the personnel for service with transports returning wounded to the States, and a lack of facility for unloading either the transports or the hospital ship *Relief*, on board of which ample supplies were stored; it was only after forcible removal of pontoons, upon my own responsibility, from a transport loaded with engineering material, that the supplies from the *Relief* were unloaded.

Two immune medical officers were taken from the *Relief* for duty in the yellow-fever hospital, and all loose tentage that could be obtained was sent to increase its capacity. The peculiar conditions made it impossible to furnish such care and attention to the sick as we desired, but not in the history of any war did medical officers of the army labor with more zeal and more self-sacrifice than did the officers under my personal observation at Siboney and its vicinity.

To Maj. Louis A. La Garde, surgeon, United States Volunteers, and Capt. M. W. Ireland, assistant surgeon, United States Army, too much praise can not be given for their untiring devotion in the arduous and trying duties that were imposed upon them, and if there is any promotion the Government can give them for their service I most cordially commend them for it.

Leaving Siboney on the 18th of July we proceeded to Guantanamo Bay, the rendezvous for the Porto Rican expedition. At this place we found a detachment of doctors and female nurses on board the steamship *Lampasas* that had been sent to work with the Red Cross Association. As they could not go into Cuba or land from their own ship, I determined to use them in the Porto Rican expedition, and subsequent events demonstrated the wisdom of this action, since the increase of typhoid-fever cases on board the steamship *Yale* was very large, requiring the transfer of some 80-odd to the ship on which these nurses were quartered, which I converted into a quasi-hospital ship, notifying the medical officers in charge of the various transports to send their sick to it, and with them descriptive lists, complete transfer lists, and sufficient quantities of medical supplies and rations

to last during the return voyage to the States; the only things, however, that the doctors furnished were the patients. When en route to Porto Rico two deaths occurred on the transports, the interments in each case being at sea. To avoid a repetition of the disregard of sanitary measures that occurred in the army in Cuba, other and more explicit directions were recommended, which General Miles promulgated in orders.

Arriving at Guanica on the 25th of July, the town and harbor were occupied, and the next morning a sharp engagement occurred, in which we had four men wounded. These were cared for at the brigade hospital. Their wounds were so slight that transfer to the *Lampasas* was not considered necessary. More transports arrived while we were at Guanica, each one bringing a large detachment of typhoid cases, which were transferred to the *Lampasas*. The health of the troops on shore while we were at Guanica was good, although some typhoid cases developed, but later, heavy rains occurring, a large sick report speedily resulted.

Arriving at Ponce on the 28th July, I found a large and well-appointed military hospital on the outskirts of the town, containing 44 sick Spanish soldiers who had been abandoned by their army in its retreat. As they were without proper food, medicines, or medical attendants General Miles instructed me to provide for them, and I employed a Porto Rican physician for that purpose, who has done excellent service up to this time. The men as they recovered were paroled, and finally the few remaining were removed, leaving the large hospital free for our own sick.

The appointment of Maj. J. McG. Woodbury, surgeon, United States Volunteers, was recommended as sanitary inspector, and instructions were given him to put the town of Ponce, which was in a filthy condition, into as clean a state as possible. He convened a meeting of the local physicians, organized a board of health, and caused a vigorous cleaning up of the streets and alleyways of the town. All buildings that were likely to be occupied by troops were cleaned, disinfected, and fumigated, and no one was permitted to enter them until a certificate from the sanitary inspector as to their cleanliness was given. Major Woodbury's report on this subject is herewith appended. Similar sanitary precautions were taken with the camps occupied by our men, and every effort was made to prevent the introduction of sickness.

As soon as practicable after our arrival the sick on the steamers *Obdam* and *Lampasas* were sent north, with a sufficient number of medical officers and hospital attendants and such dressings and comforts as could be spared. Similar difficulties were encountered at this place in the unloading of medical supplies from the transports to those we met at Siboney, although in a minor degree; and the sick were subject to much discomfort from the lack of tentage, ambulance transportation, and medicines for several days until these could be gotten on shore. Instances occurred where the hospital supplies would be on one transport, the tents on another, and the medical officers on a third.

The military hospital before referred to was in an exceedingly filthy condition, the privies overflowing with liquid excrement and the various rooms being indescribably dirty. I placed the matter of cleaning these rooms in the hands of Major Daly, surgeon, United States Volunteers, who performed this work in a most efficient manner, and within ten days after arrival we were able to use the building as a hospital for our own men. I placed Assistant Surgeon Ten Eyck, United States Army, in charge, drawing details from the various commands for nurses, and immediately commenced the admission of patients. I also detailed Assistant Surgeon Hartsock, United States Army, as medical-supply officer, making the basement of the hospital his depot. The troops in the field were supplied with barely a sufficient number of medical officers and hospital attendants to care for such wounded as might occur in the actions that were anticipated, and I did not feel justified in drawing upon their slender resources, for which reason the service of this hospital was not as efficient as it should have been.

On the evening before the troops left their camp near Ponce to march against the Spaniards, the chief surgeon of the several divisions informed me that about 50 men would have to be left in the hospital, and I made the necessary arrangements for their reception; but during the night the building was invaded by a promiscuous crowd of stragglers, numbering nearly 150, not over two-thirds of whom required hospital accommodation. There was no guard at the hospital, and the surgeon could not control them; hence there was a good deal of confusion. I established as soon as possible a convalescent camp, under charge of the Nineteenth Infantry, to which most of these men were removed. The hospital ship *Relief* arrived at this time, and about 250 cases of sickness, together with the wounded from our immediate front, were transferred to be taken north. She also took on board at Mayaguez the wounded and their attendants in General

eral Schwan's brigade. While she was here I took advantage of the presence of Lieutenant-Colonel Senn, chief surgeon, to investigate the cause of typhoid among the troops. His report is herewith appended. A large force of quartermaster's men was engaged to police the grounds, and within a few days the hospital and its surroundings were in very good condition. About this time instructions came from Washington to send no more sick north; but, realizing that the conditions here were not understood, I telegraphed for permission to make tent hospitals and continue shipping sick on such properly equipped hospital ships as might be sent here. My request being promptly complied with, the country in the immediate vicinity of Ponce was carefully investigated for a proper site, which was finally located on the grounds in the immediate vicinity of the military hospital. These were cleared of underbrush; roads leading to them were made and graded by the engineers, who also staked out the general plan for the hospital, and the necessary flooring and plank walks were laid by the quartermaster's department. The Surgeon-General had cabled me that 200 hospital tents would be sent here on the *Concho*, but I found on her arrival that they had been put in the bottom of the hold, the entire cargo being on the top of them, and could not be unloaded for seven or eight days; this delay led to considerable embarrassment in caring for the sick.

The continued rains, followed by the fierce heat of the sun, now began to produce a depressing effect upon the troops at the front. While the progress of typhoid seemed to be checked, it was followed by a rapid increase in the number of intestinal disorders and malarial fevers, which ran the aggregate sick report up closely to 8 per cent of the effective force, with the prospect of greater increase in the future. This fact I communicated to the Surgeon-General, and requested that hospital ships should be sent here in order that the sick might be removed from the island as quickly as possible.

The depressing effect of this climate upon northern men can only be appreciated by medical men who have served with them. They seem deprived of all recuperative power, and no sooner do they fall sick, even with slight ailments, than a physical and nervous depression follows, which aggravates the existing disease and renders the patient entirely unfit for service.

I have established camp hospitals in the several divisions comprising the army, namely, one each in Generals Brooke's, Wilson's, Henry's, and Schwan's commands, and have given orders that so soon as the central hospital at Ponce is emptied by transfer to hospital ships the ambulance trains shall be utilized to transfer the sick from the camp hospitals to the central hospital, thus being ready at all times to load any transport that may arrive in the harbor.

The medical supplies on hand are ample for current use, and due requisition has been made for their replenishment by transports that may arrive from the north.

Valuable assistance has been given by the National Relief Association of Pennsylvania in a shipload of groceries and medical comforts that was brought here on the steam yacht *May*, belonging to Mr. Van Rensselaer, of Philadelphia. These were transferred to me and distributed among the hospitals by Dr. Groff, a member of the association, under my direction.

The National Red Cross Association has also sent a considerable amount of supplies, which are, however, still unloaded on the steamship *Concho*, but will be distributed by the agent of the association under the direction of the chief surgeon.

In conclusion, I desire to bear testimony to the zealous and faithful manner in which their duties have been performed by most of the medical officers of this command, oftentimes under difficulties which appeared to be insurmountable. To Lieutenant-Colonel Huidekoper and Majors Woodbury and Crile special commendation is due for the faithful manner in which their duties have been performed; also to Assistant Surgeon Ten Eyck and Major Birmingham, now in charge of the United States general hospital at Ponce.

On the 24th instant orders were given for the return to the United States of certain of the troops on supply transports in the harbor. Recommendation was made and order issued for a careful examination of the sick by a board of medical officers in order that no person should be shipped who was unable to bear the journey. A similar examination of the entire company was ordered after arrival on the ship, and no ship was allowed to leave port until it was reported by the officer in charge to be in good condition.

REPORT OF COL. CHARLES R. GREENLEAF, CHIEF SURGEON, ARMIES IN THE FIELD.

[Dated November 5, 1898, covering the period May 3 to July 8, 1898, at which time he accompanied the Major-General Commanding the Army to Cuba and Porto Rico, and the period September 6, the date of his return to this country, to November 1, 1898.]

I assumed charge of the office of chief surgeon May 3, 1898, the duties embracing a general direction of the affairs of the medical department in the field. The wide separation of the several army corps from each other necessitated the direct transmission of records to the Surgeon-General, and I therefore have no statistical data to furnish.

As the troops then camped in their respective States were to be mobilized and prepared as quickly as possible for active service against the enemy in Cuba, my first steps were directed to an organization of the medical department for that purpose.

The acts of Congress approved April 22, 1898, increasing the military establishment and organizing a volunteer army, made no provision for the muster into service of privates of the hospital corps for the volunteer army or for commissioned medical officers additional to those of the regular and regimental staff for service in hospitals and to meet deficits made by casualties. The Surgeon-General informed me that he had asked legislation, through the Secretary of War, for the muster in of 25 privates of the hospital corps for each volunteer regiment and 50 privates for each division hospital, but up to this time no action had been taken on his recommendation. The matter was referred to the Judge-Advocate of the Army, who decided that the existing law, if slightly amended, was sufficient for the purpose, and that the force could be obtained by transfers from volunteer regiments into the regular establishment. He prepared a bill embodying these amendments, which was submitted to Congress, passed both Houses, and became law. The available personnel thereafter consisted of the hospital corps of the Regular Army, augmented by transfers from the Volunteer Army on the basis fixed by the Surgeon-General, namely, 25 men from each regiment and 50 for division hospitals, aggregating a little over 3 per cent of the effective force in the field.

The Medical Department of the Army in the field during the last three years of the civil war was administered as a composite organization, of which a division hospital in three brigade sections was the unit. Its personnel and material were drawn from the regiments and from a staff corps of surgeons of volunteers. In operating it the sick and wounded were removed from the regiments into brigade and division hospitals, from which they were transferred to large general hospitals in the North, and after recovery were sent to convalescent camps, to be finally returned to their regiments, the object of these transfers being to avoid overcrowding of the division hospitals and to keep their bed space as free as possible for emergencies caused by battle or camp disease. The success of this organization was complete, and its main features were subsequently adopted by foreign armies. Its enlisted personnel represented a little more than 5 per cent of the effective force of the Army.

Although the available force under existing law was but a trifle over 3 per cent of the effective force, it was believed by the Surgeon-General that the full quota (5 per cent) could be obtained in time of need by detail from the line of the Army, which for several years had been instructed in the elements of first aid and could therefore be depended upon to meet the emergencies of the battlefield.

Upon this basis I formulated a scheme of sanitary organization by consolidating the regimental personnel and material into division hospitals, each with a capacity of 300 beds and with an enlisted personnel of 99 men and 6 officers; a corps reserve hospital of equal size was also organized. Ambulance companies were similarly organized as auxiliaries to the division and corps hospitals, each with an enlisted personnel of 114 men and 6 medical officers. The cavalry, artillery, corps, division, and brigade headquarters were supplied independently and there were left with each regiment 1 medical officer, 1 hospital steward, and 1 private of the hospital corps.

In anticipation of a necessity that might arise during the campaign for changing the details of this scheme, authority was given chief surgeons to depart from it at their discretion, "to meet the exigencies of the camps or battlefield."

The plan was submitted to the Major-General Commanding, approved by him, and published and put in operation by me on the 15th of September. It should here be stated that an effort was made to accomplish the quota of members of the hospital corps on the 15th of September, but through

some objection made to the method by the Adjutant-General it fell through. The publication of the orders necessary to carry out this organization was delayed, and when put in force it met with opposition from many regimental colonels, who either objected to giving up men whose places they were obliged to fill by immediate recruitment, or transferred men who were useless to the regiment by reason of vicious habits, physical disability, or stupidity. It was a repetition of the antebellum story of giving to the Medical Department worthless material. In some instances medical officers opposed the work under the impression that their prerogatives were infringed upon.

At this time also there was lack of material with which to work; tents, ambulances, litters, medical and surgical chests, and a variety of material absolutely necessary in the establishment of hospitals were not manufactured and were therefore not to be had. Other material equally necessary that had been issued by the Department was not available, because still in the hands of the Quartermaster's Department in transit, and the ignorance of many willing medical officers in matters of military administration made the task of perfecting this organization a difficult one.

Most of the obstacles were, however, overcome, and at my first inspection of the Army in May I found the hospital and ambulance organizations progressing toward a fair state of efficiency.

Of sanitary recommendations made to the General Commanding were:

First. The limitation of numbers in any one camp to a brigade, or at most a division.

Second. Time of remaining in camp not to exceed thirty days.

Third. Frequent inspections of camps by inspectors of the Regular Army.

Fourth. Stringent regulations regarding the care of sinks, the management of the ration and its cookery, the personal cleanliness of the men, and the general police of camps.

These were considered prime factors in the sanitation of camps and subjects which were especially liable to be disregarded by undisciplined troops, whose officers were, as a rule, as ignorant as the men in the details of military life. In all of my inspections I witnessed frequent violations of these matters and directed renewed vigilance by corps surgeons to prevent their recurrence.

My first inspection included the camps at Tampa, Fla., Mobile, Ala., Chickamauga, Ga., and Falls Church, Va.

The sanitary condition of these camps, with the exception of the one at Tampa, was what might be expected of undisciplined troops. In Tampa, mostly occupied by regular troops, the difference between the conditions of disciplined and undisciplined soldiers was well marked. The camps of the former were comparatively clean, their sinks were well attended to, their cooking properly done, their rations ample. In the latter the camps were badly located, tent space ignored, streets, etc., dirty, sinks badly policed, and the cooking indifferently done.

In all the quantities of the medical and hospital supplies were limited. As a rule, the regular troops brought with them sufficient supplies to last about three months, but in many instances the volunteer troops were destitute in this respect. Before leaving Washington the Surgeon-General informed me he had ordered, in anticipation of formal requisitions, ample supplies from the New York and St. Louis depots, but at the time of my inspection they had not arrived, and in order to meet the immediate wants of the sick of the volunteers it was necessary to draw upon the slender supplies brought by the regular troops, which were soon exhausted.

At Tampa, Mobile, and Alger the corps chief surgeons, and at Chickamauga the chief surgeon, were authorized by telegraph from the Surgeon-General to purchase in local markets such medicines as were necessary to meet the emergency. Outfits for hospitals could not, however, be obtained, and the value of the division-hospital organization was immediately demonstrated by the ability of the Medical Department to utilize such supplies as it had and care for the sick of both volunteers and regulars. At my suggestion the Surgeon-General had, early in the campaign, requested the governors of the respective States to furnish their troops with the State medical outfits until such time as he could replace them by regular supplies, since the manufacturers had not yet furnished enough for all the troops. I was informed by several of the surgeons that, while the State authorities supplied the medicines in State camps, they refused to allow them to be taken outside the limits of the State, and for this reason regiments reached camp without supplies. Fortunately the sick report was small, the aggregate not exceeding 2 per cent in any camp. This favorable condition could not be expected to last if the troops were to remain any length of time in this country, and in anticipation of a

larger sick report the Surgeon-General had ordered the construction of large general hospitals and the organization of a railway hospital train service in order that the sick might be speedily removed and the overcrowding of division hospitals avoided.

I also found that the physical examinations of soldiers at muster-in stations had been carelessly made, and a large number of men incapacitated for active service were in the ranks. Boards of medical officers were organized for the purpose of examining these men and recommending their discharge by reason of disabilities existing prior to enlistment, with a view of protecting the Government against the claims for pensions, which would at the end of the campaign undoubtedly be made.

At my second inspection in June I was met at Tampa by a report that seven cases of yellow fever had occurred at McHenry, a lumber camp in Mississippi, practically on the lines of communication with the military camps in Alabama and Florida. A conference with Dr. Guiteras, the yellow fever expert attached to the Army, Dr. Porter, the health officer of the State of Florida, and several medical officers was held at Tampa, Fla., and it was agreed that if the disease invaded Alabama it would be necessary to place the army at Mobile and Jacksonville in quarantine at points which could be best protected from invasion. The points selected were Tampa, Fernandina, and Miami, since they were each to be reached by a single line of railway and access to them could be completely controlled. The maximum force to be sent to Miami was fixed at one regiment, which was to be detained there only a few days before embarkation for Cuba. Fortunately, the disease was held in check at McHenry, and movements of troops on that account were rendered unnecessary. At the conference referred to, general recommendations for the protection of troops about to leave for Cuba, against yellow fever, were also formulated, and Colonel Pope, the chief surgeon of the Fifth Corps, was furnished with a copy of the proceedings.

While at Tampa I inspected some of the transports that were loaded with troops and supplies awaiting departure for Cuba. The condition of these vessels from a sanitary standpoint was very bad. They were overcrowded to such an extent that the men could not properly attend to the ordinary wants of nature, or keep themselves reasonably clean. The cooking arrangements were defective and the fresh air and water supply were entirely inadequate. Attention was called to the matter, but it was too late to rectify it. The general commanding, however, authorized me to appoint a board for the sanitary inspection of the transports intended for future embarkation to Cuba, and this was done under the direction of Lieutenant-Colonel O'Reilly until the arrival of a line officer, who took the matter out of his hands.

Provision for the care of the sick of the command that was about to start was also meager; a fully equipped ambulance company, as well as a division hospital, having been left on shore for want of room on the transports. No provision was made for a hospital ship to accompany the expedition; but the chief surgeon finally succeeded in obtaining the *Olivette* for that purpose and partially outfitting her. My assistant, Major Daly, later in the day had her painted, in accordance with the requirements of the Geneva Convention, and the supply officer at Tampa succeeded in placing on board of her two wagonloads of extra medical supplies.

Complaint having been made regarding the water supply at Camp Alger, I made an inspection of the camp and recommended that if it was to be retained an additional supply was necessary. The location of one of the division hospitals was bad, and was changed to a more suitable point, the corps surgeon being cautioned to watch the sanitary condition of the camp and the character of the sick report with great care, taking every precaution to prevent an increase and to transfer promptly cases that required it to the nearest general hospital.

At this time (July 8) I accompanied the General Commanding on the expedition to Cuba and Porto Rico, returning with him to the United States September 6, when I was directed to proceed to Camp Wikoff, Montauk Point, Long Island, N. Y., for the purpose of expediting the transfer of the sick from that camp to city hospitals in its vicinity. This work having been accomplished, I commenced on the 6th of October an inspection of the military camps at Jacksonville, Fla., Anniston and Huntsville, Ala., Knoxville, Tenn., Lexington, Ky., and Camp Meade, Pa., a specific duty being the instruction of the medical officers in the purpose and function of the regimental hospitals, the establishment of which had recently been ordered by the Secretary of War, and to see that they were properly equipped prior to the projected movement into Cuba.

The unexpected cessation of the war and numbers of troops in the United States under which the field service of the Me-ized. Camps which at first were assumed

rent retention of large changed the conditions was originally organized temporary character,

intended for the organization and equipment of troops soon to face the enemy, had now become vast camps of instruction. The division hospitals, originally designed for mobile commands, had been extended into quasi-general hospitals, some of them with a capacity of 800 beds, the change in their function necessitating not only a greatly augmented force, but one of a different character, the trained female nurse and the Sister of Charity appearing in camp as a necessary part of the hospital personnel; and the presence of modern apparatus for the medical and surgical treatment of disease gave an appearance of stability to these institutions that seemed foreign to their original purpose.

As a rule, the hospitals were well administered, and some were models of neatness; supplies of all kinds were abundant, and the sick apparently received every attention and comfort it was possible to give them in camp.

I, however, recommended to the Surgeon-General that the large field hospitals be emptied as rapidly as possible by transfer to general hospitals in the North, until their bed capacity should be reduced to its original number.

In nearly all of the camps the discretionary authority given to chief surgeons to vary from the original scheme of organization for the field had been exercised, and many regiments were already equipped with their own hospitals, varying in capacity from ten to sixty beds.

Every regiment in these camps was visited by me and its surgeon carefully instructed in the views of the Surgeon-General regarding the function of the hospital to be established; the necessity of preparation for a movement of the regiment was emphasized, and particular caution given against the retention of any cases that might under such circumstances prove an embarrassment because of their serious nature.

Instructions had already been given for the construction of wooden pavilion hospitals at the sites selected for winter quarters of the troops, and my inspection closed with a feeling of satisfaction that the sick of the troops now in the field would be properly cared for during their stay within the limits of the States.

DOCUMENTS ATTACHED TO COLONEL GREENLEAF'S REPORTS.

1. *Memoranda of sanitary precautions adopted at a conference in Tampa Bay Hotel, June 12, 1898, by Colonel Greenleaf, Dr. Guiteras, Major O'Reilly, Major Pope, and Major Daly.*

For the troops in the United States.—On the appearance of yellow fever at Mobile, Ala., all troops at Tampa and other points in Florida to be moved to Fernandina and Miami, Fla. The establishment of sanitary inspectors on all railways leading into the State from the West and on all roads communicating with the camps from the West and North. All persons coming from the West for service in Florida to be sent to McPherson Barracks, Ga., for detention during ten days. Extra precautions to be taken regarding the policing of the camps, and a house-to-house visitation in the town of Tampa.

For the troops in Cuba.—Extra precautions regarding diet and personal cleanliness of soldiers. All water to be boiled before used. All intercourse with natives to be prohibited. Immediately after the landing of troops, all buildings that have been used by the inhabitants to be destroyed by fire, as well as all clothing of refugees. A camp of detention to be formed for prisoners of war and refugees, to be guarded by immunes, if they are to be found; if not, by a guard that shall be permanent for at least five days, after which, if no yellow fever appears, they may be changed. Should yellow fever make its appearance, the camps of the command should be moved to new sites, the brush and undergrowth being first destroyed by fire. Suspected cases to be isolated in temporary camps of detention. For convalescents from yellow fever, the clothing to be destroyed by fire and new clothing issued.

2. *Extract from letter of Colonel Greenleaf to the Adjutant-General, headquarters of the Army, dated July 7, 1898.*

Finally, and by far the most serious, is typhoid fever, of which in each camp there is a number of cases, which, in spite of preventive precautions, is steadily on the increase. As this is a water-borne disease the greatest care has been exercised in the selection of the sources of water supply, and of the examination of the water by every means known to science, the result showing that the regular water supply at the several camps is as yet free from any dangerous element;

and there is a consensus of opinion among the medical officers that the germs of this disease are obtained from infected water sources outside the camp limits, such as wells in the neighboring farms and infected water in adjoining towns, which are constantly visited by the troops. How long the camp sources can be kept free from infection is hard to say. Among the sanitary precautions taken are the recommendation of boiled water as a constant beverage for the soldiers, the perfection of drainage systems, and the disposal of the excreta, either by burying in pits or by cremation. If the former precaution should be carried out we might feel assured that further cases of typhoid fever would not occur, but as a practical fact it is as yet impossible to secure compliance with this order by the soldiers. The number of diseases attributable to malaria is comparatively small.

Considering the fact that troops are living under conditions entirely new to them, including insufficient tentage and clothing, indifferent cooking of food, and unaccustomed exercises, I think the general sanitary condition is good, but this should not be taken as an index of continued improvement. On the contrary, it is my opinion, in spite of the sanitary precautions, the percentage of sick will increase until the discipline of the volunteer troops has so far improved that we may be assured of compliance with the orders that are given for the preservation of their health.

Regarding the health of the troops now operating in Cuba, I feel that there is reason for grave apprehension. Added to the conditions I have mentioned above as existing in camps of instruction, there are in Cuba climatic and other conditions infinitely more harmful and difficult of control; the long-continued and excessive daily heat of the climate, with rapid lowering of temperature at night; the necessary exposure to rain in the absence of tentage; the scarcity and poor cookery of food; the effect of prolonged physical exertion on the battlefield, inducing nervous exhaustion, are all factors which must be seriously considered in forming an estimate of the health of the troops if their continued residence in Cuba is contemplated. To this should be added the almost certain appearance of yellow fever. While the medical officers are fully alive to the gravity of this situation, and have prepared with the utmost care the sanitary measures which are necessary to prevent disease, and have ample medical supplies to control it should it appear, it must be borne in mind that the military situation renders the carrying out of most of these precautions an impossibility. Without proper tentage and clothing the ill effects of temperature and moisture can not be prevented; without the necessary means of cookery proper food can not be supplied. Under existing circumstances the sterilizing of water supply for the entire command by boiling may be said to be an impossibility, and should yellow fever make its appearance it will be almost equally impossible to thoroughly prevent its spread.

3. Lieutenant-Colonel Senn's report, dated August 10, 1898.

I have the honor to report to you the results of my investigations concerning the origin of typhoid fever among our troops in the city of Ponce and its vicinity, as requested in your order of recent date. There are at present about 250 cases of typhoid fever in the army of invasion at this point. A careful study of 200 cases of which I have reliable information shows that the disease in every instance was contracted before leaving the United States. By far the largest number were contracted in Camp George H. Thomas, Chickamauga, Ga. The Second and Third Wisconsin Volunteers furnish the largest contingent, followed by the Sixteenth Pennsylvania and Second Massachusetts. Camp Alger comes next; the fewest cases from Tampa. Typhoid fever is indigenous in Ponce to some extent throughout the entire year, and from the large number of infected cases extra precautions will become necessary to prevent further spread of the disease among our troops. In view of the great prevalence of the disease in Camp George H. Thomas it appears to me that the Medical Department of the Army should recommend immediate evacuation of the camp.

4. Major Woodbury's report, dated August 6, 1898.

Upon receipt of Special Orders, No. 3, I immediately inspected the caserne, the jail, and the Spanish hospital, and the camping ground of the troops. Finding the city to be without any health organization, I summoned all the medical practitioners to meet me and organize a board of health. They chose for their representative Dr. Moret, who graduated at Bellevue Hospital Medical College in 1880, who, with the mayor of the city and the syndic exofficio, now compose the board of health of Ponce. The regulations issued to the inspectors of the board, who are four in number (one for each ward in the city), are as inclosed. The imme-

diate questions pressed upon the board, with whom I meet three times per week, are: First, street cleaning. This has been begun, and in some districts is being carried on quite well, and will be pushed. Second, the public water supply. This is derived from the Rio Portegese. The intake of the aqueduct is at a pond formed by a dam about 6 feet high across the river. This pond has been almost filled with silt and the deposit caused by the wash of the heavy rains. It will be cleared out and another heavy galvanized iron strainer placed over the intake. As soon as possible a filter will be placed at the city end. The valley of the Rio Portegese, which I have carefully inspected, is clean, and only occupied by infrequent coffee estancias, the drainage from which is not considerable.

The disposition of the public dead must be immediately changed. The present method is to inter them five tiers deep, and in five years to dig over the same ground and begin again. I have begun arrangements for a new public cemetery outside of the city proper, all interments being heretofore intramural. As soon as the purchase of land is completed and the ground consecrated the new cemetery will be in use.

I have thoroughly disinfected and in part repaired the city prison. I am clearing the drain of the Spanish military hospital, which, with fumigation and cleaning, will render it suitable for immediate occupancy, as it is but one year old. I have fumigated and cleaned the caserne and rebuilt and cleaned the sinks therein, rendering it fit for use. All captured woolen uniforms and clothing have been immediately burned. Several bales of cotton clothing that were new have been boiled for an hour and might be used.

The troops are quartered in buildings, save the prison guard on the roof of the jail; one company of the Third Wisconsin in the caserne, as guard over the large quantity of ordnance stores therein, and two companies of the Sixth Illinois, which are acting as provost guard at Playa. The latter are partially sheltered by the sheds of a lumber yard.

I have inspected the sheds which the Government has used at the Playa as storehouses, and find them, after their policing, clean and proper for use.

The camps of our troops are so situated as to render them dry and well drained in the showers, and I can only beg strict regimental orders against the men filling canteens in the streams where the inhabitants are washing their clothes.

We have here at present 10 cases of smallpox and a few cases of measles. There is no yellow fever and no report of a case for three years. No typhus and but few cases of typhoid among the inhabitants. As soon as the proper virus can be obtained from New York, I shall begin compulsory vaccination of the inhabitants. On August 3, in accordance with your orders, I went to Arroyo, 45 miles east along the coast, obtaining transportation in New York Sun dispatch boat *Kanapaha*. Upon landing, I found a small Spanish town in the form of the letter T, with head toward the beach. It was fairly clean and well policed. The local medical authorities report no yellow fever and no smallpox in town; some cases of the latter in the surrounding country.

General Brooke is quartered in the second story of a building on the beach, General Hains in the custom-house, the staff in a large house in the village, and the troops in tents about a mile back from the beach. No buildings are used as storehouses. All officers will go into camp as soon as the tentage can be brought ashore.

REPORT OF LIEUT. COL. A. C. GIRARD, UNITED STATES VOLUNTEERS, CHIEF
SURGEON SECOND ARMY CORPS.

[Dated October 21, 1898.]

I was ordered to report to Maj. Gen. William M. Graham, commanding Second Army Corps, on the 19th of May, 1898, at Camp Alger, Va. I received the order on the 20th, and proceeded the same day to Camp Alger—a point 7 miles from Washington, D. C.—in the State of Virginia, the nearest site of the camp being 2½ miles from the railroad, and extending eventually 2 miles farther toward the Potomac.

On reaching the camp I found that the corps commander had not yet arrived, and reported to Major-General Guenther, commander of the First Division. He, however, had no knowledge of the corps organization. I remained in camp the only officer of the general staff, and the next morning, on the arrival of the adjutant-general of the First Division, I ascertained that a number of regiments were in camp; that they were coming in with every train, generally without previous announcement, and camped where they saw fit.

I inquired about the water supply, and was informed that there were supposed to be a number of fine springs on the place, which was a water shed for the city of Alexandria. I succeeded in obtaining the services of Lieutenant Ames, of the Sixth Massachusetts, as engineer, and, accompanied by the proprietor of the place, I started out to locate these springs, the engineer noting them on a map. I found the tract of land which was supposed to be occupied by the troops to be composed of woods, with open places of from 20 to 100 acres each. The country was uninhabited, with the exception of two homesteads, and only a few fields were cultivated. A large number of springs could be found all over the grounds. Their capacity, however, was small and evidently insufficient for a large command for any length of time. In addition to these springs there were two wells at the homesteads, which were said to give an abundance of water. I at once repaired to division headquarters and recommended that these springs be placed under guard to prevent the defiling of the ground in the vicinity, and that an engineer officer be supplied with a sufficient force to excavate these springs into sink-barrels, in order to utilize them to the best advantage. The quantity of water soon proved insufficient for the increasing number of the troops, and great complaints were made of its scarcity. I was in great doubt as to what my duty was in the premises.

The camp had been selected by the War Department, which must have been fully apprised of its facilities for water supply; and considerations of which I could have no knowledge were, in my opinion, the reasons for the selection of this ground. I therefore deemed it my duty not to impede the Government by entering a formal protest, but to make the best of the situation, hoping that the stay of the troops would be but temporary, and that meanwhile the water supply might prove sufficient. In order to increase the quantity of water available, I recommended that details be ordered to gather the water at the springs during the night, and, as very soon the question of purity became a burning one, I recommended the water to be boiled by the detail and supplied the troops in barrels at the company streets. An order to that effect was issued by the commanding general, but very imperfectly carried out—partly for the lack of barrels, partly for the lack of utensils for boiling the water, and partly from indifference.

I had at the same time made recommendations for the proper care of the privies and their disinfection, which were ordered carried out; but the orders were obeyed in a very indifferent manner, the regimental surgeons proving particularly indifferent to the care of the privies.

I found the cooking done in a very careless and unskillful manner and recommended simple cooking regulations, which were ordered, but never enforced.

While attempting to have the sanitary condition of the camp regulated I was forced into making provisions for the care of the sick of the command. I had understood that you had requested the governors of the several States to provide the regiments with their equipments at the expense of the General Government, but found that this request had either not been complied with at all, or, by the lack of judgment of the medical officers as to the quantity needed by these large commands, had been so inefficiently complied with that there was a great lack of medical supplies, some regiments having a large number of sick without tentage or medicines to take care of them, and I was compelled to establish at once a division hospital, the supplies for which I obtained by calling in all the medical supplies of the command on an order from the commanding general. This gave me time to obtain the most necessary medicines before the first supply was exhausted, and I obtained everything needful. Naturally I incurred the ill will of those regimental surgeons who had come well supplied with the regimental hospitals and who could not realize the situation. The supply of medicines, however, of all was very limited, but the wants could be met by frequent issues in small quantities.

Not knowing the intentions of the Government with regard to the command, I used the most strenuous exertions to equip the hospitals for the field, and succeeded in providing three brigades with a complete outfit, which were detached for service in Cuba or Porto Rico. I had to do this again by depriving some of the well-equipped regiments which were to remain in camp of their equipment, which, however, had to be replaced as soon as possible. The medical and surgical chests and orderly pouches, which required special preparation, were very slow forthcoming, as the troops which were first destined for Cuba had to be supplied first, as I was informed.

I had no intimation until late in the summer that Alger was to be a camp of instruction, and that the troops were not destined to take the field immediately. The camps of the regiments at first were badly laid out, the tents crowded, the

privies too close to the camps, but gradually the matter was remedied, and whenever I found that the health of a regiment was deteriorating I caused the regiment to be removed to a new site.

As early as the 3d of June I recommended individual covering of fecal matter in the privies. This was generally disregarded until the commencement of August, when, on my recommendation, an order was issued enforcing this necessary sanitary measure, and since that time, by close watching, it has been the rule of this camp.

Shortly after the fact had become plain that the water supply from the springs would not be sufficient for this command drive wells were commenced and the work continued day and night until every regiment was furnished with a pump. These wells were, on an average, 120 feet deep, and driven through clay until they reached shale rock, in which the water supply lay, and then driven still further into the solid rock. In this manner no subsoil water could reach the water supply. The water from these wells was analyzed in your laboratory and found pure excepting two instances, which revealed organic matter. These wells, although completed, were at once condemned.

About the middle of July the Second Division of the corps was suddenly ordered one night to start on the march to Thoroughfare Gap, Va., at 7 o'clock the next morning, leaving their tents standing and taking only shelter tents. Very hasty and imperfect provisions were made for the supply of the troops with food, causing much complaint and no doubt sickness. This command was unfortunate in encountering very severe rain storms on its march, and ordinary sanitary precautions were then ignored, as I was informed. I was not with that command.

The First Division was moved from its camp site to one where there was more space at Dunn Loring as fast as wells could be driven. On the 14th day of August it was decided to move this command to Middletown, Pa., to which place I accompanied the commanding general in a train preceding the troops. I drove with him over the Young's farms, which had been selected by the commission from the War Department, of which Deputy Surg. Gen. Charles Smart was a member, and found that the most level camp sites were in the valley of the Susquehanna, too close to the river, and I recommended that no locations be chosen below the second bench, which necessitated the camp to be spread out over a number of miles, on account of the broken condition of the grounds.

The water supply here also was precarious, the Quartermaster Department having had a well driven which gave about 50,000 gallons in twenty-four hours. The plan was to pump this water into tanks, and thence to distribute it by pipes over the camps. The troops arrived, however, before this water supply could be completed. Fortunately a pure limestone spring was found within convenient distance, and the water supply of the town of Middletown was available. All three sources of water supply were chemically examined in a laboratory, which I had established in one of the division hospitals in this camp, and found pure. For several weeks the water had to be hauled in barrels to the different camps, and every possible precaution was recommended by me to insure its delivery in a pure condition. In order to guard against any possible contamination affecting the health of the troops I caused a set of Maignen and Berkefeld filters to be issued to each company with orders to detail a special man for the care of the filters and one of the junior medical officers in each regiment to superintend the work. This duty was omitted or carelessly performed, like most of the sanitary duties of the volunteer officers. Some regiments did not even unpack the filters; others used only the Maignen. Still, a gradual improvement in the care of the filters took place by the appointment, on my recommendation, of an inspector. My object was not so much to purify the water, as the supply was pure, but to educate the troops in the use of the filters and to insure a sufficient supply of them for each command as experience would teach me to find necessary.

Every possible sanitary precaution was recommended by me to improve the health of the command, which had severely suffered from typhoid fever, of which I will speak hereafter. Orders were not only issued but carried out, and compliance was watched by the commanding general, corps, division, and brigade inspectors, sanitary inspectors, and by myself.

The composition of the command entirely changed after the troops reached Camp Meade, some regiments of the corps not even arriving at this camp, but being sent to their States from Camp Alger to be mustered out. In their place came 12 regiments from various parts of the country, most of which had been in regimental camps and were ignorant of the sanitary regulations carried out in this command, and had generally ignored sanitary rules and thereby added to the number of sick in the command. It is impossible in this résumé to refer to each

month. The ice was paid for through the generosity of the National Relief Commission, and was unlimited.

At the very outset of the camp I had established a supply depot for the corps, and in this manner succeeded in having on hand a stock of medicines from which division hospitals were supplied; and at no time was there an absolute insufficiency, although at times there was a scarcity. I can attribute this only to wanton waste, which I could not locate, but which I tried to prevent wherever possible by stringent regulations.

The first hospital established on the grounds was the First Division hospital. I was compelled to place it in an undesirable location, as I desired to have it in the vicinity of the only available well and within reasonable distance of the troops which it was to supply with shelter for the sick. I had it soon placed on a more desirable ground, but at no time was the hospital under sufficiently competent charge to effect what I thought it ought to accomplish. The main reason for this was the apathy of the officers in charge and the indifference of the men composing the hospital corps.

When the Second Division was organized I was fortunate enough to secure the services of Maj. F. C. Stunkard, surgeon of the One hundred and fifty-ninth Indiana, who had assisted me in establishing the First Division hospital, and had thereby acquired some knowledge of matters of administration. I placed him in charge of the Second Division hospital, and by his personal magnetism he succeeded in bringing about a friendly feeling among the colonels and the medical officers of a number of regiments, thereby enabling me to secure the transfer of a more desirable class of men; and the hospital, even after Major Stunkard returned to his regiment, retained its higher grade of efficiency.

On being notified that the Second Division was to make its march to Thoroughfare Gap, I prepared a complete brigade hospital and had it sent with that division, expecting to supply any deficiencies, as they were to remain on the line of the railroad.

As mentioned above, I had to establish the hospital at Bristow, and in order not to deplete the brigade hospital of the Second Division I sent the supplies for that hospital by ambulances across country, not willing to trust to the delays of the railroad, and in that manner completely equipped it. Having received information that the Second Division continued its march from Thoroughfare Gap to Middletown, Pa., I transferred all the sick and the necessary tentage and supplies from the Second Division hospital, which had remained standing in camp, with 300 sick, to the First Division hospital, and completed, as far as I could, another brigade hospital, which, with the brigade hospital that accompanied the Second Division, could supply these troops with sufficient facilities for the care of the sick. These orders were changed, however, and the whole move was to be made by rail. I therefore telegraphed to have 50 additional tents meet us at Middletown, and with the equipment of the Second Division hospital sent the hospital force of that hospital on the second train to Middletown, and as soon as a suitable place could be secured established a hospital in advance of the arrival of any of the troops. I then caused the corps reserve ambulance company, of whom about 100 had accompanied headquarters, to establish a hospital in readiness for the First Division. The organization of the First Division hospital on the departure of the troops from Dunn Loring was left standing under the charge of the best officers I could find, and after disposing of the sick, was with the personnel moved to this camp.

The Hospital Corps.—The difficulty of obtaining a sufficient number of men from the regiments to give 2 per cent of the force allowed for the Hospital Corps and the impediments thrown in my way were so great that the commanding general determined to stop all transfers and to send out a recruiting party to fill up the Hospital Corps. I was fortunate in gaining the good will of the colonel of one of the Ohio regiments, who, not understanding the system of the division hospitals at first, had been very hostile to any transfers or the detail of his officers in the division hospitals. He not only offered me a full quota of the hospital detail of his regiment, but also sent an officer with a party of noncommissioned officers to recruit desirable men in southern Ohio. In this manner in a very short time I not only succeeded in filling the quota of the divisions, but also in organizing a full corps reserve company, and had at least then the men necessary for the service. The inability of medical officers to grasp the company organization and its papers and lack of mental force or training to control the men led finally to my requesting authority to place one of the officers of the line, who are allowed as quartermasters in the division hospitals, in command of the Hospital Corps companies, and gradually matters became systematized. The reserve company was of the greatest use to me, since it supplied 25 nurses to the general hospital at Fort Myer, 75 to the ^{new} hospital at this place. As soon

as I obtained its personnel I started regular mounted drills, litter exercises, and general instructions in first aid and nursing, and hoped in this manner to supply the divisions with well-trained men and call in those that needed instruction. The move to Camp Meade, however, frustrated this design. When the order for muster out came, more than one-half of the Hospital Corps left with their regiments, under an agreement which I had to make in order to get any men at all, that should any of their regiments be mustered out they would return home with them. Fortunately here again the reserve corps stepped in, and by dividing it between the two hospitals I succeeded in retaining a sufficient number of men who by that time had become very well trained to perform the service in the hospitals with the aid of detailed men from the regiments under General Order No. 126. I then applied for the detail of an officer of the Fifteenth Minnesota to recruit the hospital corps in Minneapolis, and am now getting recruits and hope to fill the corps to its full quota before starting for the South.

On arrival in Augusta, I propose to reorganize the reserve company and, if circumstances permit, turn it into a training school, from which to replenish losses in the division hospitals or transfer men thence to the school.

I desire to add the following conclusions and recommendations as further results of my experience in the performance of my duties as chief surgeon of the Second Army Corps:

First. Regimental medical officers and hospital stewards: I believe that this method of supplying volunteer troops with medical attendants should be done away with, as it has been abandoned for many years in the Regular Army. Instead of the medical officers being selected for their superior aptitude, they have been relics of the National Guard service, in which, as it is known, these offices are filled with men, by the colonels, regardless of professional standing, generally for personal reasons of political preferment. The medical officers in this manner are too much dependent on their colonels, who, instead of looking upon them as medical advisers, consider them only ornamental additions to their staff. This cripples the independence which a medical officer ought to have of his commanding officer, and makes him useless as a sanitary adviser with an ignorant or opinionated colonel. I have also found that the medical officers were so wedded to their regiments that any duty outside of the regiments, either of a sanitary nature or in division hospitals, was resented by them as an imposition.

The hospital stewards of the regiments were fully equal to the medical officers in their regimental adhesions, and proved, as a rule, useless in division hospitals. In the regiments many of them did the real professional work, as they were physicians, while the administrative work in hospitals was new to them, and they worked at a disadvantage. I would recommend that regimental surgeons therefore be abolished, and that some measures be taken to obtain a reliable medical corps for the volunteer service, even at a sudden call like the one of the war with Spain.

Second. Much of the enmity displayed against the division-hospital system was due to the belief of the regimental medical officers that I was introducing notions of my own into the administration of the medical service. It seems very desirable that a carefully prepared code of regulations be worked out and printed for the field-hospital service in the style of those of foreign armies, thus not only bringing about uniformity in methods, but a possibility for the medical officers of inferior rank to become acquainted, by study, with the administration of the Medical Department.

Third. It was very fortunate that I was authorized to increase the small number of acting hospital stewards allowed in the organizing order, and recommended that such an increase be made permanent, on the same basis as noncommissioned officers are appointed for the troops of the line. I found that since I received this authority, and the men knew that they had something to gain by good behavior, and the stewards something to lose by incompetency, I obtained much better service than ever before.

Fourth. One of the principal sources of infection in the command is the fecal matter, and a permanent system for the disposal of this question in the field appears very desirable, and the equipment necessary for the purpose should form part of the regimental baggage. It should therefore be of imperishable material, easily kept clean and easily transported, and I believe that the best method is to provide each company with two cast-iron troughs, on cast-iron wheels, the front axle on a pivot. These troughs should be about 10 feet long and have a circular opening with a cast-iron cover, opening downward, 1 foot in diameter at the bottom. They should have two movable lids, one supplied with four holes, the other as a cover to prevent unsightly appearance in the removal of the trough.

Fifth. The question of water supply for the troops in camp and on the march should also receive serious and permanent consideration. I believe that one or more water carts should form part of every regimental equipment, to carry

the water to the camps where hydrants are not available, and to make a suitable water supply accessible to the men on the march. I believe that this necessary article of diet should be issued to the troops with the same care as the components of the ration. In this manner only can the proper sanitary supervision be carried out. If necessary, a system of filtration could be connected with these carts.

Sixth. As a considerable part of the army will hereafter be stationed in sub-tropical countries where pure water supply can not always be obtained, a nest of boilers in a box, supplied with hinge lids and hasps, should form part of the equipment of every company, to render the boiling of water possible. As the nest of boilers can be utilized for the carriage of sugar and coffee and similar components of the ration, it is believed that it will not be left behind like other more complicated apparatus, and will always be carried with the cooking outfit; consequently remain with the troops.

Seventh. Contract surgeons: The position of the contract surgeons is an anomalous one. They are civilians performing the duty of officers, and have the rights of neither, if it suits the commanding general to deny them. The method of employing this useful class of officers in the Navy seems to offer a remedy, as there they obtain the warrant from the Secretary and form part of the establishment. They would in this manner also be more secure against arbitrary dismissal, and, as in the Medical Department of the Navy, a list of qualified men examined by the medical board could be appropriately kept on file in the Department, from which, in case of necessity, the proper men could be recommended to the Secretary of War for warrant. They would in this manner become eligible to the military orders which perpetuate the associations of the wars, and no doubt would add to the inducement for a suitable class of men to present themselves for admission to the rolls.

Eighth. Division and brigade surgeons: The division surgeons of this corps are men of high professional standing and status in the National Guard service, but absolutely ignorant of administrative work in the Army. I therefore recommend that only trained medical officers be in the future made eligible for the high offices in the Medical Department, and in this manner the War Department will be relieved of the political pressure which brought about the selection of men who were not suited for these positions.

The brigade surgeons should likewise be trained medical officers, as their duties, as a rule, call them to duty in division hospitals. Their name, brigade surgeon, appears to be a misnomer, and has caused in this corps frequent attempts on the part of brigade commanders to have these officers attached to their staff, where they occupied more ornamental than useful positions.

I believe that the system of the war of the rebellion of appointing surgeons and assistant surgeons, United States Volunteers, throughout the service would meet the requirements of the Volunteer Army better than that which now provides for officers performing duty under the misnomer of brigade surgeons.

For duty in the colonies which have passed into the possession of the United States, medical officers of the Regular Army should receive at least one grade increased rank, in order to enable them to better meet the expenses of keeping two households, and to make them equal in rank to brigade surgeons or whatever the title may be of the superior medical officer, with the proviso that where officers of equal rank serve together the medical officers of the Regular Army, irrespective of the date of appointment, shall be considered the seniors.

I trust that in considering this report you will bear in mind that my duties with this corps were entirely of an administrative character, and as I had to follow up and supervise duties which usually are performed as a matter of course by medical officers of inferior rank, I was less able than I would have been under other circumstances to closely observe the etiology of epidemics or to make observations of a clinical or purely professional character.

REPORT OF LIEUT. COL. CHARLES SMART, DEPUTY SURGEON-GENERAL, UNITED STATES ARMY, ON SANITARY CONDITIONS AT CAMP ALGER, VA.

[Dated July 13, 1898.]

I have the honor to report that, in accordance with paragraph 33, Special Order 157, Adjutant-General's Office, Washington, July 6, 1898, I proceeded, on July 8, to Camp Alger, Va., and inspected the camps of the First Division, and on the 11th the camps of the Second Division, Second Army Corps, having meanwhile investigated the condition and clinical histories of the cases of typhoid fever that had been removed from these camps to the general hospital at Fort Myer, Va.

I found two troops of New York cavalry on the slope of the headquarters of the corps. These had ample

camping ground, which was well drained, but had no shade. Their water supply was derived from the same source as that of the headquarters.

The striking characteristics of the camps of the First Division were overcrowding of tents on the camp site, overcrowding of men in the tents, dust, sun glare, and fetid odors. The Eighth, Twelfth, and Thirteenth Pennsylvania were packed closely together, with scarcely an interval between the regiments, the company streets hardly wider than the intervals between adjacent companies should have been, tents of the same companies in contact with each other on the sides and of adjoining companies in contact by the ends. The double row of tents between the narrow company streets thus made a continuous canvas covering with double partitions dividing it up into small sections, under which it was impossible for the 5, 6, or 7 men in each section to get a breath of fresh air. The Eighth Pennsylvania had their common or wedge-wall tents floored with boards, but so close to the ground that there was no air space beneath the flooring. These tents had a ground area of about 56 feet. In addition to wedge tents the Twelfth and Thirteenth Pennsylvania had some conical wall tents, which also were overcrowded. In many there was no flooring, the men lying on the ground, their blankets and clothing matted with dust. The kitchens were close up against the company tents, with uncovered cesspools for kitchen slops and garbage, and the sinks also were so close that, although some care was given to cover the deposits with earth, the sink odor pervaded the company streets. The sinks were too small for the accommodation of the regiments, so that they were in constant use and always contained reeking and uncovered excreta. The streets and the open ground in the neighborhood of the camps were kept clean and free from excremental or garbage contamination. Under such conditions of overcrowding on a dusty site it was impossible for men to keep themselves clean or free from body vermin, if the latter were introduced, while typhoid fever or any other infectious disease might be expected to spread quickly. That serious consequences have not been developed is due to the heat of the weather, which has led the men to seek as much as possible for ventilation.

The walled wedge tents of the First New Jersey were similarly crowded on each other, but only four men occupied each tent. The streets were only about 13 or 14 feet wide. The sinks were manifestly cared for, but were so near that the odor pervaded the camp. The men slept on their dust-matted blankets on the ground, and nothing in the line of spare underclothing in the blanket roll could be kept clean under these conditions. Adjoining tents of the same company in the Seventh Ohio were separated from each other by about 3 feet, insufficient to give a passageway between the guy ropes, and there was no passageway between the tents of adjoining companies, these being pitched end to end in contact. The streets in this command were wider than those heretofore mentioned, and the men were building low bunks about 8 or 10 inches from the ground to keep themselves out of the dust. All these camps were on open ground, originally grass-covered, but now trampled under foot into a garish and dusty surface. A slight incline gave good surface drainage to the westward. No brush awnings or fences had been erected, and the sinks in most instances were protected merely by a strip of canvas. Practically the only sign of the existence of available wood and brushwood in the neighborhood of the camps was the building of the low bunks in the last-mentioned command. The Sixty-fifth New York had more space. It was camped in a grove of young trees, which, while giving little shade, lessened the garishness by their greenery. Its conical wall tents were separated from each other and well trenced, but no bunks had been built; its sinks were well kept, and so far out that there was no taint in camp. The camps of the Sixth Illinois, Sixth Massachusetts, and Eighth Ohio, on a rising ground north of the hospital of the First Division, were evacuated on the day before my inspection by the departure of these regiments for the front.

The regimental camps of the Second Division were generally more expanded than those of the First Division. In none was the odor of the sinks perceptible in the company areas. The streets and surroundings were clean in all, with the exception of the Seventh Illinois, where filth was deposited by the side of the pathways to the sinks. The Sixth Pennsylvania was camped in an open space in walled wedge tents 7 by 8 feet, with a height of about 7 feet to the ridge, 18 inches of which was constituted by the wall. Four and 5 men were in each of these. Some had bunks of forked uprights supporting a platform of saplings, but many were lying on the dusty ground. The Second Tennessee was similarly situated, but in conical wall tents. The First Rhode Island, also on open ground, was in small wall tents, 6 men in each, all on bunks raised about 18 inches from the ground, except a few who had bunks of evergreens on a bark-covered floor. Care was evidently exercised here to have the men clean and comfortable. The Twenty-second Kansas had the same kind of tents as the Rhode Island regiment,

but each was made to accommodate 8 men. All lay on the ground; a few with pine twigs under them to keep them from the dust. The One hundred and fifty-ninth Indiana was in walled wedge tents, 4 men in each; some having shelter-tent extensions to lessen crowding. The tents were pitched too closely, and the men lay on the ground, dusty and dirty. The Third Missouri had 5 men in each walled wedge tent, and no flooring nor bunks. The Third New York had its streets narrow, its conical wall-tents set too closely; the men lay on the ground on their dusty blankets. The Fourth Missouri had the advantage of shade by being camped in a wood. The wall tents were well spaced and the streets comparatively wide. All were furnished with raised bunks; and the regiment would have had a model camp had care been given to the policing of the interior of the tents. The Seventh Illinois also was favorably camped in the edge of a wood with every facility at hand to have made a model camp, but the conical wall-tents, instead of being furnished with well raised bunks, were littered with dirty straw.

The chief surgeons of division and the regimental surgeons in each instance accompanied me in my inspection.

The great faults in all the camps were the tendency to crowding the tents on each other, the overcrowding of the individual tents, and the want of care for the comfort, cleanliness, and health of the men in failing to have them build bunks, fences, and awnings, when the materials for these purposes were at hand.

The natural drainage in all the camps was good, but in some lying near the margins of a run the subsoil water is too near the surface for health later in the season when heavy rains fall. A thick stratum of clay underlies a few feet of pervious surface soil, and in some of the camps cesspools for kitchen slops consist of basins in this clay, which retain the liquid contents, fermenting in the heat and infecting the neighborhood with bad odors and flies.

The water supply obtained by the Engineer Department is from a series of about 28 driven wells over 100 feet deep, all furnishing a soft and organically pure water. Prior to the sinking of these tubes water from springs of uncertain quality was used by some regiments, while others used water from the sluggish runs, which is manifestly impure, and would undoubtedly have occasioned disease if used without boiling.

These camps, notwithstanding their many insanitary features, are unusually free from disease. Vaccinia, measles, a few venereal cases from proximity to Washington, and some diarrheas from irregularities in diet, or from chill after perspiration, and the difficulty of attending to personal comfort in the crowded tents, constitute the sick list. In addition to these, I found that since the camp was established, in May, 39 cases of typhoid fever have been reported and sent to hospital for treatment. Of these 39 cases, 4 have died—2 from the incidence of the fever and 2 from intercurrent pneumonia. Although not verified in any of these cases by post mortem observation, there is no doubt of the diagnosis, for the clinical features were well marked, and Widal's test has given positive reactions. Abdominal, not cerebral, symptoms have characterized the cases. Four occurred during the month of May, 23 in June, and 12 up to the date of my inspection in July. Taking the month of June as the second month of the aggregation of troops after the call of the President, and rating the strength at Camp Alger during that month at 20,000, the fever rate for the month would be 1.15 cases per thousand men. When we compare this with the July and August record of typhoid among the troops gathered around Washington in 1861, 2.2 in the one month and 6.14 per thousand in the other, we have reason to feel satisfied that the efforts to reduce the typhoid fever rate at the present time has been so successful. The 39 cases were distributed as follows:

Command.	May.	June.	July.
6th Pennsylvania.....	1	1	.....
8th Pennsylvania.....	.....	2	.....
12th Pennsylvania.....	.....	1	3
13th Pennsylvania.....	.....	1	1
65th New York.....	1	.....	.....
150th Indiana.....	.....	2	1
3d Missouri.....	.....	2	1
4th Missouri.....	.....	1	.....
2d Tennessee.....	.....	1	1
3d New York.....	.....	1	.....
8d Virginia.....	.....	1	.....
6th Massachusetts.....	.....	4	3
6th Illinois.....	.....	2	.....
New York cavalry.....	2	5	1
Total.....	4	23	12

The regiments which have not as yet been affected with typhoid fever are the First Rhode Island, Twenty-second Kansas, Seventh Illinois, Seventh Ohio, First New Jersey, and to these must be added the Sixty-fifth New York, for this regiment brought one case of fever with it to Camp Alger, but has had no case since then. It is evident that the crowding on the camp sites, in the tents, and the dusty condition of the men from sleeping on the hard-trampled ground, are not factors in the causation of the typhoid cases that have occurred, for, although the First Rhode Island, which was tolerably free from these insanitary conditions, had no case, the First New Jersey, which had all of these conditions in an aggravated form, also had none. From the manner in which the cases are scattered through the camps, it seems clear that the infection is due to causes which are not general, but which operate on the individual or on two or three closely related individuals in the same command. This excludes all emanations from the camp site or its surroundings, and all matters relating to the subsistence of the troops, including the general water supply. We know now that the great prevalence of typhoid fever in the camps around Washington in 1861 was due to the use of surface water in runs and creeks contaminated with infected excreta from the carelessly policed camps of those days, and the more closely the present cases are investigated the more evident does it appear that the sporadic cases that have occurred are due to the occasional use of surface or farmhouse well waters that have not been sterilized by boiling. Before the deep-well-water general supply was obtained, many of the regiments made use of waters from springs of uncertain quality and from surface streams of certainly bad quality, and that this was not followed by widespread evil consequences is due to the care taken that such waters should be boiled before use. The largest number of cases occurred among the troops of the New York cavalry, the members of which on orderly duty are frequently away from camp, and while on such duty are in the habit of drinking from the most available source of supply, irrespective of quality. I feel confident that with the present general water supply and the prompt removal of sporadic cases to general hospital there need be no fear of any epidemic visitation of typhoid fever in the Second Army Corps. I would suggest, however, that due care be given to the removal of the insanitary conditions which I have pointed out, as these would be very apt to promote the spread of the disease were many sporadic cases to appear.

REPORT OF LIEUT. COL. RUSH S. HUIDEKOPER, CHIEF SURGEON, UNITED STATES VOLUNTEERS, FIRST ARMY CORPS.

I arrived in Chickamauga early in the morning on May 26, and reported immediately in person to Major-General Brooke. I found that no organization of the medical service had been made. Major-General Brooke was in command of the entire forces of Camp George H. Thomas, and was also the immediate commander of the First Army Corps. He had a general staff for the entire forces, and I was one of the first officers directly assigned to the staff of the First Corps who had reported. The deputy surgeon-general of the Department of the Lakes, Colonel Hartsuff, was the senior medical officer on General Brooke's general staff. I found that a medical supply depot had been established at the railroad station in charge of Major Comegys, who was dispensing medical supplies in small quantities on irregular requisitions approved by Colonel Hartsuff.

I applied to the Adjutant-General for a list of the troops of the First Army Corps, and immediately proceeded to visit their camps and personally to obtain information in regard to the available material for the medical service. The First Corps consisted of twenty-seven regiments of infantry, as follows:

First Division.—First Brigade: First Ohio Volunteer Infantry, Third Wisconsin Volunteer Infantry, Fifth Illinois Volunteer Infantry. Second Brigade: Third Illinois Volunteer Infantry, Fourth Ohio Volunteer Infantry, Fourth Pennsylvania Volunteer Infantry. Third Brigade: Sixteenth Pennsylvania Volunteer Infantry, One hundred and fifty-seventh Indiana Volunteer Infantry, Second Wisconsin Volunteer Infantry.

Second Division.—First Brigade: Thirty-first Michigan Volunteer Infantry, Third Pennsylvania Volunteer Infantry, One hundred and sixtieth Indiana Volunteer Infantry. Second Brigade: Sixth Ohio Volunteer Infantry, One hundred and fifty-eighth Indiana Volunteer Infantry, First West Virginia Volunteer Infantry. Third Brigade: Second Ohio Volunteer Infantry, First Pennsylvania Volunteer Infantry, Fourteenth Minnesota Volunteer Infantry.

Third Division.—First Brigade: First Illinois Volunteer Infantry, Twelfth Minnesota Volunteer Infantry, Fifth Pennsylvania Volunteer Infantry. Second Brigade: Twenty-first Kansas Volunteer Infantry, Eighth Massachusetts Volunteer Infantry, Twelfth New York Volunteer Infantry. Third Brigade: Second

I found available for immediate organization 27 regiments with 3 surgeons each, a total of 81. With the 12 surgeons to be appointed by the President for divisions and brigades, a medical inspector, and myself, I had a prospect of 95 medical officers. The difference between the 89 medical officers authorized and 95 left a very narrow margin for cases of illness, leaves of absence, or other causes of diminution in the service.

My authority for organization provided for 1 hospital steward for each regiment, 1 hospital steward for each division headquarters, and 1 for corps headquarters, 7 hospital stewards for each ambulance company, and 6 hospital stewards for each hospital. I found that the hospital stewards, like the regimental surgeons, were component parts of the regiment, appointed by the governor of the State or the commanding officer.

I was authorized to furnish each regimental surgeon with 1 Hospital Corps private, each brigade surgeon with 1 Hospital Corps private, each division surgeon with 1 Hospital Corps private, and 2 Hospital Corps privates for my own office. Ninety Hospital Corps privates were required for each hospital and 104 for each ambulance. These Hospital Corps privates did not exist.

The act of Congress which provided for the organization of the Volunteer Army had neglected to provide for its Hospital Corps, but General Orders, No. 58, charged the commander of the army corps "with full control of the transfer from its line of members of the corps."

On arriving at Chickamauga Park I found in the First Division, First Corps, a hospital of some 120 beds. It had been established by the deputy surgeon-general, and was in a way taking the place of a general hospital, as it received sick not only from the regiments of the First Corps, but from the artillery and from other organizations. This hospital was in charge of Captain Wakeman, an assistant surgeon of the Regular Army.

Early in June Maj. J. H. Hysell, assigned as chief surgeon to Second Division, First Corps, and Maj. J. D. Griffith, assigned as chief surgeon to the Third Division, First Corps, arrived, and I immediately undertook the organization which I was instructed to carry out.

I took the list of names furnished me by the commanding officers or surgeons of regiments of the men whom they had brought for hospital purposes, and requested the adjutant-general, First Army Corps, to transfer these men to the Hospital Corps, which was done.

From time to time I requested the detail of various medical officers of the regiments for duty with the medical service, First Corps, and they were ordered to report to me for assignment to duty. I also requested the detail of the hospital stewards of the various regiments for duty with the general medical service.

When these details of medical officers and hospital stewards were made I was able to furnish the division surgeons, Second and Third Divisions, and Captain Wakeman—in charge of First Division hospital—with medical officers, stewards, and a certain number of privates, legally assigned to the medical service.

At this point I met with a sudden and, in some cases, violent opposition. Some commanding officers of regiments whom a few days before had furnished me, with pride, a list of their regimental hospital service, suddenly changed their view and objected to any transfer from their regiments. In one regiment which had 48 men with brassards on their arms, the brassards disappeared entirely, and on my next visit I was told by the regimental surgeon that these men were nothing but company bearers, detailed from time to time for local work. In another regiment after the order of transfer had left the Adjutant-General's office and was on its way through division and brigade headquarters, the regimental commander returned the men in his hospital to the ranks and claimed they were not intended for hospital service. Considerable objection and, in some cases, formal protest was made to the detail of the additional surgeons in each regiment to the general service. In one division five regimental commanders went so far as to hold a meeting and send their respective governors a 200-word telegram against being deprived of these component parts, in the shape of regimental surgeons and hospital stewards, of their regiments. However, before their protest could be of value the Adjutant-General had issued his order and had made details. On the 29th day of June the Adjutant-General had detailed every medical officer of the twenty-seven regiments for assignment to duty by me, and on June 30, pursuant to Army Regulations, No. 11, I had the medical officers report to me in person at the First Division hospital and draw lots for relative rank in the cases where the commission had been the same day.

I then made final assignment of 1 medical officer to each regiment and 6 each to the hospital and ambulance companies.

Late in June Major Parkhill, assigned to the First Division, First Corps, had reported for duty, but in the meantime Lieutenant-Colonel Senn, chief surgeon,

Sixth Army Corps, and Maj. John Woodbury, a division surgeon, Sixth Army Corps, had also reported to General Wilson, and from having no chief surgeon of the First Division I found the administration of this division somewhat complicated by an excess of chief medical officers.

During June all the chief surgeons of brigade, appointed by the President, had reported for duty. I then had, so far as officers were concerned, my complement of 3 division surgeons, 9 brigade surgeons, 27 regimental surgeons, and 48 surgeons appointed respectively, 6 to the four hospitals and four ambulance companies. Of the details of regimental hospital stewards I had reassigned 1 hospital steward each to the regiments from which they came and the others to the hospitals and ambulance companies. In addition to the Hospital Corps men transferred from the regiments, I had received from various recruiting stations 95 Hospital Corps privates and had a total of 454 Hospital Corps privates.

The growth and demand for immediate work in the three division hospitals had limited me in establishing all hospitals and ambulance companies. I therefore had deemed it expedient to hurry the organization of the three division hospitals, and early in June had organized the reserve ambulance company, which I used as a training school, and which furnished the ambulance service for the three divisions during the month of June.

I selected for command of the reserve ambulance company, Maj. James Johnston, surgeon Sixteenth Pennsylvania Volunteers, an officer whom I had known in the National Guard of Pennsylvania, and whose energy, and faithful, conscientious work and executive ability through the entire summer has justified my selection of him. Major Johnston entered heartily into the system of organization and furnished me most valuable service; he, from study with me of the organization and of what was needed, and from daily conversation and consultation, understood thoroughly the details of the work which we had to do, and knew, as I did myself, much of what was still in such a condition that it could not be put on paper.

During the month of June all the later transfers of Hospital Corps men from the regiments and the recruits received from the recruiting stations were sent directly to him at the Reserve Ambulance Company, where as rapidly as possible the qualifications of the individual men were studied, and it was determined whether they were best fitted to be assigned to hospitals or to ambulance companies.

We followed throughout, however, the principle of assigning the transferred Hospital Corps men back to the hospitals and ambulance companies from the divisions from which they had come, so far as it was practicable and proper. Early in July I commenced to reassign medical officers who had been serving in the Reserve Ambulance Company back to the division from which they came to take charge of the division ambulance companies which I then organized. At this time I organized the reserve hospital and placed in it, again as a training school, the surplus Hospital Corps men who exceeded in numbers the 114 men authorized for the Reserve Ambulance Company.

At this time, however, I met with a sudden and unfortunate obstacle to the organization. The protest of regimental commanders through their Governors and Senators, and the support which they received from sensational public opinion and the press bore effect. The first orders came detaching portions of the First Division, First Corps, and ordering them to Charleston, and Major-General Brooke instructed me that regimental surgeons who had been detailed for general service should be returned to their regiments. The first officer I lost was my valued assistant, Maj. James Johnston. Fortunately he had an able successor, Maj. Frank Boyd, Third Kentucky; but Major Boyd, with all his ability, was not familiar with the details as his predecessor had been.

As the First Brigade and Second Brigade, First Division, First Corps, left Chickamauga, I was obliged not only to lose certain officers who had already been trained in the Reserve Hospital and Ambulance Company, but the hospital service of the First Division hospital was broken up by the loss of men who were familiar with the details of its routine.

During this entire organization of the personnel and in the reassignment of medical officers to regiments, I took special pains through the chief surgeons of divisions to use every courtesy possible in consulting the wishes of the regimental commanders as to what medical officer of the three they wished left with the regiment. I met with very little gratitude for my courtesy. I used every courtesy possible in consulting regimental commanders and the senior surgeons of regiments as to the privates to be transferred to the Hospital Corps, and for my courtesy in a majority of instances I met with a vigorous protest. In many regiments privates made application to the Adjutant-General through military channels for transfer, and had their papers

stopped at regimental headquarters. The surgeons with the regiments were forbidden in many cases by their commanders to furnish me with the names of the men who had enlisted for hospital purposes, or desired transfer.

By July, as the hospital service and need of ambulance service had grown, and it was an absolute necessity for me to have a larger number of nurses, I made a final appeal to Major-General Brooke, stating the opposition which I had found from the regimental commanders. He authorized me to take 150 men, selecting them with as much judgment as possible.

I made a list based upon the personal applications which individuals had made to me, stating that their commanding officers had refused to forward their applications, and based upon recommendations of regimental surgeons who desired to aid the organization. When this became known, a few commanding officers immediately sent in lists of men to be transferred, and the entire transfer was made by the Adjutant-General in one order. When these men reported, I found that certain officers had selected drunkards, epileptics, and other worthless men not wanted in the regiment and had sent them to me. In one case the detachment of men transferred to the hospital service was called by the regimental commander, and, in the presence of their comrades, the men were told as a farewell that he, their commander, was ashamed of them and all that he could imagine was that those who made application for Hospital Corps service had done so because they were cowards and afraid to go on the firing line; that the best thing he could wish them would be that they would go to Cuba to nurse the yellow-fever patients (the inference being, and there die). This was the material provided for and furnished me to take charge of and nurse the sick in the First Army Corps.

The organization of the hospitals of the Second and Third divisions.—We drew new tentage in limited quantity at first, gradually increasing the size of the hospitals as the demands required; but the demands grew rapidly, and we were hampered by a limited supply of hospital tentage and a still more limited supply of cots and bedding, so that it was only well on in July before we obtained proper supply. Ambulances, wagons for hospital transportation, and other quartermaster supplies were obtained with scarcely any delay. The quota for the Reserve Ambulance Company was filled early, but those for the division ambulances were drawn slowly throughout June and early July, as I had not a sufficient number of Hospital Corps men to properly care for them. It was a constant strain through this period to furnish enough men for the absolute work required in the hospitals.

Supplies.—When I first reached Chickamauga I found the regimental surgeons drawing medicines in small quantities on informal requisitions or slips of paper which were passing through the deputy surgeon-general for approval before reaching the purveyor's depot. Many medicines were unobtainable or obtained only with the greatest difficulty in limited supplies. We were instructed to confine requisitions to the medical supply table.

Early in June, when I was ordered by the deputy surgeon-general to have requisitions made out based on the medical supply table for a three months' supply for the regiments, I attempted to carry this into effect. I found that medicines did not exist in quantities which allowed of this being done, and I steadily continued to approve the informal requisitions for such medicines as were immediately needed, and for such as I could learn were in the purveyor's depot and were obtainable.

I was further instructed to have the issue of medicines to the regiments made through division hospitals. This was carried into effect at once in the First Division hospital, but was ordered for the Second and Third divisions at a time when these hospitals had not been completely organized, and were not in such shape that they could issue medicines. For a time in the Second and Third divisions medicines were obtained only in small quantities and with the greatest difficulty. I continued to persistently approve requisitions for small quantities, which I believed obtainable, on the ground that the regiments had not yet been issued the medical chests and means of taking care of large quantities of medicines, and many of the regimental requisitions were as persistently disapproved by the deputy surgeon-general, and refused at the medical purveyors. I constantly requested that the medical chests should be issued to us. At the outset there were no desks for medical officers or stationery of any kind. I was obliged to go personally to a printer in Chattanooga and at my own expense have printed blanks on which the morning reports of sick could be made.

On June 11 I forwarded my Saturday report to Washington and requested that proper supplies be furnished me.

When finally early in July a limited number of medical desks arrived we were obliged to rob them of the reports of sick and wounded and other stationery to supply surgeons of regiments who had not yet been supplied. In addition to these

Saturday reports which I made during June to the assistant surgeon-general at Washington, I made daily at 4 o'clock a report of the condition of the medical department and its needs to the deputy surgeon-general, which reports I was told were embodied with similar ones from the Third Corps and sent in the evening telegram to Washington. I was constantly assured that medical supplies of surgical chests, medical chests, field desks for the medical officers, mess chests, food chests, cots, bedding, and other hospital supplies and medicines in proper quantities would arrive. After one urgent appeal through Major-General Brooke the deputy surgeon-general purchased medicines in Chattanooga or elsewhere, but until toward the middle of July many of the regiments were obliged to obtain their medicines through the generosity of neighboring regiments generously supplied by their State governments, or by direct purchase themselves of necessary articles, which was done at their own expense.

When in July the movement of the troops from the First Division to Charleston and Porto Rico began, supplies had commenced to arrive in large quantities, but I was obliged to furnish the reserve section of the First Division and the First Brigade, First Division, with sufficient supplies. When later headquarters First Corps and the Second and Third brigades, First Division, were ordered to move I found many supplies not obtainable. The deputy surgeon-general disapproved my requisitions and those of the chief surgeons, Second and Third divisions, as being in excess of what was allowed by the medical supply table. I then made a final appeal to Major-General Brooke, who, over the disapproval of the deputy surgeon-general, approved my requisitions and ordered the supply-depot to furnish what I required.

I then found, however, that the purveyor's depot did not contain supplies which it was supposed to have. I telegraphed to the Surgeon-General, who authorized me to purchase at Newport News such supplies as I could which had not been obtainable at Chickamauga.

In order to fit out the brigades, First Division, First Corps, for their immediate movement, I was obliged to restrict the Second Division and the Third Division somewhat in their supplies, but approved their requisitions for complete supplies; and as I was assured that supplies were on their way to Chickamauga I supposed and trusted, although I have never heard, that they were given their full quota by Colonel Hoff, chief surgeon Third Corps, who took charge of these two divisions as chief surgeon when headquarters First Corps left Chickamauga.

Sanitary condition.—By reference to my communication of June 11, referred to above, it will be seen that I considered then, as I do now, that Chickamauga Park afforded and is an excellent location for a camp. As I then said, the water was good, but deficient in quantity, which was being remedied by the introduction of a pipe line and the sinking of drilled wells, which it was supposed would supply water in ample quantity. The troops of the First Army Corps were already located when I reached Camp George H. Thomas. At the outset I visited each and every regimental camp in company with the regimental surgeon, recommending to him what changes and precautions should be taken in regard to cleanliness, the company kitchens, the men's sink, and the water supply.

From that time until I left Chickamauga on July 23, I visited the entire three divisions every two or three days. I usually visited two divisions on one day and one on the alternate day, except at times when excess of office work prevented me covering the ground in less time than three days. Upon the arrival of the division surgeons I visited the entire division of each with him. The camps of the First Division had the inspection of the division surgeon, Major Parkhill, aided for a time by Lieutenant-Colonel Senn, and at all times by Maj. John Woodbury. This division had its hospital under the charge of Maj. William Wakeman, United States Volunteers, a promoted Regular Army surgeon. Two of the three brigade surgeons, Majors Stevenson and Birmingham, were Regular Army officers.

Maj. J. H. Hyssell, chief surgeon Second Division, and Maj. J. D. Griffith, chief surgeon of the Third Division, were medical officers of ability, thoroughly conscientious, and untiring in their inspections of camps and in attention to their division hospitals. Of the six brigade surgeons in these two divisions, three, Majors Kendall, Glennon, and Mearns, were Regular Army officers of recognized ability.

On July 1 Maj. Charles F. Mason, United States Volunteers, a Regular Army surgeon, was appointed medical inspector of the First Corps. It will therefore be seen that we had in the First Corps seven medical officers of the Regular Army charged with administration and inspection of hygienic conditions.

Until the end of the third week of June we had had excessively dry weather, and the diseases had been of a trivial character such as diarrheas in new recruits, caused by the sudden change of food and outbreaks of measles, which never proved serious; an outbreak of measles in a regiment of considerable extent, and a large number of venereal diseases existed in the First

Division a few cases of typhoid fever, which had been left at the time of the departure of the regular United States troops.

It was with extreme difficulty that proper policing, the cleanliness of the company streets, and the digging of sinks to the proper depth and keeping the contents covered with fresh dirt could be enforced. Again, there was a tendency after reviews and other large functions, where bodies of troops were kept out for some hours during the day, to be lenient with the men upon their return to camp on the ground that they were "volunteers" and "recruits," and it was claimed could not be worked as regulars could have been. It was no unusual sight to find junior line officers resting in their tents and the men left to their own devices while policing was put off until the morrow. It then too frequently happened on the next day that some other demand for military maneuvers allowed the policing to again be neglected and delayed until the morrow.

Much has been said in regard to the proper distance at which the men's sink line should be placed from the camp. While it is recognized that the distance should be as great as possible, yet placing the sinks at too great a distance had at times the disadvantage of placing them beyond the sight of the officers of the camp, and of the guards, who were instructed to keep the surrounding parks clean, and when sinks were placed at a considerable distance from the camp it was frequently found that the shady spots under trees of the surrounding ground were indiscriminately soiled, while with the sink closer to camp and under the eye of the guard they could be kept neat and properly covered.

Toward the end of June we had for the first time a considerable amount of rain, lasting several days. The collection of water from this rain showed that the sections of the ground in the center of the First Division, First Corps, and in several smaller localities in the Third Division, First Corps, lay upon a substratum of clay, which acted as a natural basin. In these localities the sinks filled with water, overflowing and contaminating certain springs and wells which, until that time, had furnished pure and good water. A week later, during the last few days of June, a number of cases of typhoid fever developed, when an immediate special inspection was undertaken, and the direct source of origin of some of the cases of typhoid fever was proven. The following table gives the sick report of the First Army Corps on the days of the adjutant-general's trimonthly report, and below is appended the reports from the three divisions showing the number of cases of typhoid fever existing on the last day of June:

Aggregate strength, number, and percentage sick, First Corps, taken from adjutant-general's trimonthly report.

Division.	June 20.			June 30.		
	Strength.	Sick.	Per cent.	Strength.	Sick.	Per cent.
1st Division	9,490	206	.....	10,832	180	.....
2d Division	9,197	831	.....	11,107	298	.....
3d Division	8,431	279	.....	10,126	315	.....
Cavalry brigade	3,127	99	.....	3,295	147	.....
Total	30,245	910	2.99	35,360	938	2.65

Division.	July 10.			July 20.		
	Strength.	Sick.	Per cent.	Strength.	Sick.	Per cent.
1st Division	10,803	214	.....	10,759	318	.....
2d Division	11,535	299	.....	11,666	396	.....
3d Division	10,909	477	.....	11,683	556	.....
Cavalry brigade	3,314	123	.....	2,470	149	.....
Total	36,561	1,113	3.04	36,578	1,419	3.88

FIELD HOSPITAL, FIRST DIVISION, FIRST CORPS,
Camp George H. Thomas, Ga., July 1 1898.

CHIEF SURGEON, First Division, First Corps.

SIR: I have the honor to report that of 69 cases, typhoid fever diagnosed in 61; typhoid fever is suspected in 3; convalescent from typhoid, 5; total treated as typhoid, 69.

Respectfully,

H. E. BRADLEY,
Major and Surgeon United States Volunteers,
In charge Hospital First Division, First Corps.

HEADQUARTERS THIRD DIVISION, FIRST ARMY CORPS,
OFFICE OF CHIEF SURGEON,
Camp George H. Thomas, Chickamauga Park, Ga., June 30, 1898.

Respectfully forwarded.

There are 9 cases of typhoid fever in division hospital and 19 cases of "suspects." Twelfth Minnesota, 3 cases; Ninth Pennsylvania, 2 cases; Second Wisconsin, 1 case; Twenty-first Kansas, 1 case; First New Hampshire, 1 case; First South Carolina, 1 case.

Suspects brought in this a. m., 1 from First New Hampshire, 3 from Ninth Pennsylvania, 1 from Twelfth Minnesota. In hospital, 7 from Twelfth Minnesota, 2 from Ninth Pennsylvania, 3 from Fifth Pennsylvania, 1 from First South Carolina, 1 from First New Hampshire.

Supposed origin of fever in Ninth Pennsylvania, contamination of water with surface drainage.

In Twelfth Minnesota, from ("suspects") (typhoid malarial?) bathing in Chickamauga Creek.

J. D. GRIFFITH,
Major, Chief Surgeon, United States Volunteers,
Chief Surgeon Third Division, First Army Corps.

On July 1 in the Second Division, First Army Corps, there were but 7 cases of typhoid fever, of whom 2 were convalescent. This division, with its strength of over 11,500 men, only had 12 additional cases during the first three weeks in July. It will be seen, therefore, that of typhoid fever on July 1, there were:

	Diagnosed.	Suspect.	Total.
1st Division	66	3	69
2d Division	7	.....	7
3d Division	9	19	28
Total	82	22	104

Previous to July 1 a number of applications had been made for the issue of disinfectants. At this time an urgent appeal for the issue of disinfectants came from the regiments in the center of the First Division and from the brigade surgeons, Majors Glennon and Mearns, Third Division. These requisitions were approved by the chief surgeons of divisions and were approved by me, but when carried to the deputy surgeon-general of Camp George H. Thomas, they were disapproved, inviting attention to Army Regulations, 1462, forbidding the routine use of disinfectants. The disapproval of the deputy surgeon-general as to the use of disinfectants was carried to such a point that carbolic acid, desired for the treatment of chancroids and other surgical purposes, was obtained with difficulty on the ground that it might be used as a general disinfectant.

From this time during the three weeks which I remained in Chickamauga I visited the division hospitals each at least once in every two days, and was in daily consultation with the chief surgeons of divisions in regard to the hygienic conditions of the camp. The Second Division, First Corps, was located on a sloping shale soil with good drainage, and with the exception of the outbreaks of measles, had but few cases of contagious diseases. The hospitals, Second and Third divisions, were neat and clean and were most faithfully administered by both the surgeons directly in charge of them and by the chief surgeons of division, and were beyond criticism, except for the lack of sufficient medical supplies and sufficient number of Hospital Corps men.

At this time I had frequent consultations with Major-General Brooke as to the removal of the camps of the First Division and of the Third Division, which were located upon clay soil, and twice had been instructed to consult with the commanding officers of the divisions as to the removal of the troops from the site on which they were located to new camping grounds, when telegrams from Washington notifying Major-General Brooke that the First Corps would be immediately removed from Chickamauga caused delay in taking action.

During July the troops of the First Division commenced to break camp. Twice brigades were reorganized and camps partially broken, when the order was revoked and the men reestablished themselves in their original location. Finally the newly formed First Brigade, First Division, sent to Charleston, leaving its sick in hospital and a large number of cases in quarters attached to

the Fifth Illinois Regiment, to which was also added a large number of recruits recently received. The departure of the First Division headquarters, the First Brigade, and then the Second Brigade, immediately preceding the departure of First Corps headquarters, caused the withdrawal of a number of surgeons from the First Division hospital, in order that they might accompany their respective regiments. To supply the places of the Hospital Corps privates apportioned to the departing brigades, I was obliged to detail a number of men temporarily from the reserve hospital and ambulance company and from the other divisions. This confusion of departure accounted reasonably for the somewhat demoralized condition of the First Division hospital, which, as already stated, with reasons already given, had never had the systematic organization which existed in the Second and Third divisions.

On July 23 headquarters First Corps left Chickamauga for Newport News. It was accompanied by the reserve hospital and ambulance company completely organized, with 12 commissioned officers, 213 enlisted men, 24 ambulances, 20 army wagons, and tentage and supplies for a hospital of 200 beds.

At Newport News this was augmented by the brigade hospital section, Second Brigade, First Corps, consisting of 3 medical officers, 60 Hospital Corps privates, 6 ambulances, 5 wagons, and tentage and hospital supplies for a hospital of 50 beds.

At Newport News the Second Brigade was encamped for several days. Instructions were issued to the brigade surgeon to have a thorough investigation made of the commands in this brigade and to eliminate the sick, who were left at the general hospital at Old Point Comfort.

Headquarters First Army Corps and the Second Brigade, First Division, First Corps, were embarked on six transports and left Newport News on July 28. The first transports reached southern Porto Rico on the evening of July 31, and after touching at Ponce reached Arroyo and commenced landing on August 2. Four transports with the headquarters, the troops of the First Illinois Volunteer Infantry, Fourth Ohio Volunteer Infantry, and Fourth Pennsylvania Volunteer Infantry, and with the ambulances and wagons belonging to the Hospital Corps, landed at Arroyo. On the *Seneca* there were 1 medical officer of the reserve hospital and 16 Hospital Corps privates.

The entire remainder of the Hospital Corps, officers and men, and the animals for transportation were on the other two transports—the *Massachusetts* and *Roumanian*—which, as we learned later, had grounded near Ponce, and the men only joined us more than a week later by coming overland. Immediately on landing the troops were placed in temporary camps at a short distance from Arroyo, and were rapidly scattered in small outpost detachments and in advance battalions toward the direction of Guayama.

In Arroyo the medical inspector and surgeon of the Third Illinois had established a small hospital in the building of the town cocking pit, which we were obliged to use temporarily for a number of cases which had developed sickness, and we were obliged to ask for a detail of privates from the commands to take the place of the Hospital Corps men who had not arrived.

Having but 1 officer and 16 Hospital Corps men to look after the unloading of the ambulances, wagons, and medical supplies which were being unloaded from lighters, mixed with the supplies of three infantry regiments who had ample force to look after their own stores and who acquired much which did not belong to them, a certain amount of property belonging to the reserve hospital and ambulance company was lost.

Some of this property was afterwards found in the various camps and recovered, but a portion of it was totally lost. As soon as the ambulances and wagons could be put together and the property had been collected and placed in them, they were removed by the use of bull teams to a well-located gravel field on the Arroyo, where a hospital camp was formed and was ready for occupancy by the hospital corps when it arrived from Ponce.

By this time the troops had taken possession of Guayama and had moved the advance outposts to the mountains beyond. On the afternoon of August 12 a general advance was ordered, and the entire hospital with its sick, then numbering some 120 cases, was moved during the night to a knoll at the edge of Guayama. During the remainder of August the troops were scattered for a distance of several miles around Guayama. Efficient service was rendered by the ambulance company making the regular tours twice a day at fixed hours, and being always ready in cases of emergency.

Here again difficulty occurred with the regimental commanders in the attempt of the regimental surgeons to establish and maintain regimental hospitals. For several reasons I was called upon to act energetically in checking them and consolidating the sick at the reserve hospital.

In the first place, I had my orders as to the organization of the medical service. In the second place, the constant military reasons for movement of troops rendered it important that they should not be hampered by having sick on hand, and the establishment of the regimental hospitals prevented the surgeons of the regiments from accompanying the commands and giving them proper attention. In the third place, I had just received a peremptory telegram from the assistant surgeon-general at Ponce, calling my attention to the fact of a building having been occupied at Arroyo. I was obliged again to resort to Major-General Brooke's never-failing justice and respect for orders for authority to consolidate the sick in the field hospital.

A week later I was furnished with a hospital building at Guayama, which, after a thorough cleansing and disinfection, was made into a ward of the hospital, in which were placed 30 beds, to treat the more serious cases of fever. At both the field hospital and at the ward in Guayama we had built ovens of brick, and with crushed and dried sugar cane for fuel, I ordered the complete destruction of all fecal matter and garbage. Notwithstanding the inspection which had been ordered at Newport News, it was found that, either through neglect on the part of one or two surgeons or a false courage on the part of men, who would not answer sick call for fear of not being allowed to accompany their comrades on the expedition, a number of cases of typhoid fever developed. In addition to these cases the other serious cases were malarial fever, of which the remittent type and a continued climatic fever lasting from five to six days were most common.

Considerable confusion existed at the outset in regard to the discipline of the hospital corps. Maj. Lawrence Smith, surgeon, First Pennsylvania Volunteers, who had been surgeon in charge of the hospital, had been taken ill while on the transport and had been returned to the United States, and unfortunately died. The books of the reserve hospital, including the personnel of the hospital corps and the list of property, could not be found.

As before stated, just before leaving Chickamauga, Major Boyd, surgeon, Third Kentucky Volunteers, had assumed command of the ambulance company. However, it required but a few days to completely reorganize. Major Boyd, assisted by Captain Taylor, assistant surgeon, Fourth Ohio, Lieutenant Colby, assistant surgeon, Thirty-first Michigan, in the ambulance company, and Major Bain, surgeon, Second Ohio Volunteers, in charge of the reserve hospital, with his hospital staff of assistant surgeons, deserve the utmost credit and recognition for the faithful way in which they overcame lesser obstacles and for the devoted, untiring energy to the performance of their duties.

In addition to the three regiments forming the Second Brigade, First Division, First Corps, we had at Guayama Troop H, Sixth United States Cavalry, Company F, Eighth United States Infantry, a battalion of four batteries, commanded by Major Rodney, a battalion of four companies of the Signal Corps, commanded by Colonel Glassford, and the First Troop Philadelphia City Cavalry.

On September 2 the troops in Guayama were left under command of Brigadier-General Grant.

Major-General Brooke, accompanied by his staff, Troop H, Sixth United States Cavalry, and Company F, Eighth United States Infantry, proceeded across the island to Rio Piedras, on the outskirts of San Juan. Here the troops were placed in a small camp, and the detachment of reserve hospital corps which had accompanied headquarters was placed in charge of Maj. Charles F. Mason, medical inspector.

On September 15 General Brooke assumed command of the United States troops in Porto Rico, and announced his former staff, First Army Corps, to their respective positions on his staff as a commanding officer of the United States troops in Porto Rico.

I had received absolutely no information in regard to the condition of the medical service in western and southwestern Porto Rico. On September 17 I was ordered to make an inspection of this portion of the island.

I left Rio Piedras on September 18 and made the inspection, making daily reports by telegraph and by letter to Major-General Brooke. I collected during this inspection a roster of the medical officers and Hospital Corps men, with an inventory of medical supplies, a copy of which I left for the chief surgeon sent to relieve me.

I beg to call attention to the valuable services rendered both at Chickamauga and in Porto Rico by Maj. H. P. Birmingham, chief surgeon, Third Brigade, First Division, First Corps, who had charge of the hospital at Ponce, which he administered with method, system, and a display of energy remarkable considering the conditions with which he had to deal.

On October 8 I was furnished by the Adjutant-General, United States troops in Porto Rico, a copy of paragraph 34, Section 1, Adjutant-General's Office, Current Series, ordering me to report to the Adjutant-General in Washington. No steamer was available until October 10, 1898. San Juan.

REPORT OF LIEUT. COL. A. A. WOODHULL, DEPUTY SURGEON-GENERAL UNITED STATES ARMY, ON CONDITIONS IN CAMP GEORGE H. THOMAS, CHICKAMAUGA PARK, GA.

[Dated August 7, 1898.]

In compliance with a War Department order (Special Orders, No. 162, July 12, Adjutant-General's Office, current series) I have made a sanitary inspection of the various camps and field hospitals at Camp Thomas, Ga., and of the Leiter General Hospital, and report as follows:

I personally examined every regiment in camp, excepting one or two that arrived during my visit and were assigned to brigades already inspected, and those that were ordered from the camp before I reached them in regular course. I also inspected all places where the sick are cared for.

The latest return gave 43,723 officers and men present, and 2,988 of these sick, exclusive of those sent to general hospital and those who have died or have been discharged for disability. This represents 6.83 per cent present sick, of which at least 4 per cent is grave, and both the rate and the gravity are increasing.

The determining conditions are (1) site, (2) water supply, (3) character of troops, (4) climate, (5) shelter and occupancy of camp, and (6) employment and control. These are not independent, but are conjoined factors treated separately in this report for convenience, but exerting their influence together.

(1) *Site*.—The camp includes an irregular area 10 by 12 miles square, or about 70,000 acres, bounded on the west by the Chickamauga Creek. The surface is both rolling and level, partly wooded and partly entirely cleared. The greater part has sufficient grade to carry the surface water into natural channels, that are dry except after rainfall. The timber is not dense and is free from undergrowth, so that the sun reaches the ground in nearly all places. There are no distinct swamps or morasses, but what are known locally as the "flat woods" should not be occupied, although some were camped in. The whole region is underlaid with magnesian limestone, which in some places crops out at the surface and in others is covered with dense and tenacious clay, varying in depth from a few inches to many feet. There are a few hillocks of gravel, I am told, but I saw none opened. The rock is irregular in density as well as in disposition. A part requires blasting and a part is fragile. Borings show different strata of varying degrees of hardness, with intermediate layers of dense clay. Communicating rifts may be expected in such limestone, permitting contamination of water over considerable distances. It is claimed, however, that no such rifts have been recognized in boring more than 80 wells. Their occurrence large enough to allow a free flow of water is nevertheless possible. These wells go to a gravel from which water rises near to the surface, but the engineer does not know whether the same bed is always reached. There are "sink holes" in various places that are not filled by any waste flowing into them, and some wells are roily after rain. It is manifest, therefore, that there is, at least, occasional intercommunication. When clay is encountered, and most of the camps are over clay, it holds water almost as cement would, making the construction and care of the sinks very difficult. In other cases the nearness of the rock to the surface makes them very shallow. The camps that are in low ground are consequently wet and very imperfectly drained. Since the middle or 20th of July a good deal of rain has fallen; previously the dust was spoken of as intense. There is a good deal of local feeling in favor of vacating the woods altogether and encamping entirely in the open. I think no camp should be in the "flat" or "low" woods, but the high woods are dry and are too sparse to interfere seriously with the sunlight.

(2) *Water supply*.—(a) From the Chickamauga Creek, which runs through an alluvial bottom, an extensive pipe system has been introduced from which water may be drawn by frequent taps. At the time of inspection this water was very muddy from repeated rain. In other respects there was no gross contamination, as far as recognized, except such as would naturally be found in a sparsely settled agricultural and somewhat malarious region. The sewage from the Leiter Hospital does not flow into the Chickamauga, as has been charged.

(b) There are numerous surface "springs," the most of which should not be used, but from which the men have drunk freely. The park commission has filled the more objectionable of these.

(c) More than thirty driven wells have been bored to water-bearing gravel. Four of these are less than 50 feet deep; the others range from 64 to 156 feet in depth—fourteen of them being more than 100 feet. The construction of the wells themselves is very good; the casing is iron hammered into a tight joint running down 15 feet, and the pump is placed on a tight cap elevated above the surface. I think no surface contamination need be feared, but it is probable that some are directly polluted through neighboring sink holes. Several have been condemned

on suspicion, of which a part at least is well founded. In one instance (the Jay's Mill well) the pump has been placed in a so-called spring that receives a great deal of objectionable waste, and after a heavy rain the wash runs into the top, as is shown by the flood mark.

(d) There are also on the grounds, and within a few miles of the park, very large springs having a prodigious flow, from which some regiments haul their water in barrels or tanks for their immediate supply. I was unable to examine the springs that are beyond the park limits. One large spring a few hundred yards from its camp, from which the First Mississippi is drawing water, seemed liable to be hurtful unless the water is boiled.

The effort has been to limit the drinking water to the wells and the safe springs, and, after precautions, to the pipe line; but there is no doubt that water from all sources—from the pipes and from the surface springs—has been freely used without preparation. This occurred repeatedly within my personal observation; and, before the supply was as general as now, doubtless was much more common.

Filters of two varieties, both of which require to be used with the same water, have been introduced, but only recently. There is general complaint, which I think is well founded, that under the conditions the apparatus is insufficient and inefficient. It was repeatedly reported that the Berkefeld filter would require cleansing after preparing half a bucket of water, and many have been broken in the very act of filtering. In very few regiments are all the Berkefeld filters in operation, and in some they were distinctly abandoned after a few days' use. Practically, as already remarked, a great many men drink without discrimination any water they find. Without doubt, the best arrangement is that of the Third Tennessee, where all the 11 filters supplied to the regiment are concentrated into one battery under the charge of an officer; but even here, where extreme care appears to be taken, four bougies were broken already. The supply of water is insufficient, and has been more so. Where the filters are depended on the flow is not adequate. The very best showing is that of the Third Tennessee, just quoted, which gives 1 barrel and 4 buckets, or, at the outside, 66 gallons per company of more than 100 for twenty-four hours for all potable and culinary purposes. Including unavoidable waste, that does not allow more than 5 pints per man. This is a probable maximum, and from this it dwindles to a zero of filtered water, and a very small amount of that which has been boiled. There are general instructions to boil all the water, whether filtered or not. In the only regiment where I could be sure that order was actually enforced (Eighth Massachusetts) no typhoid has yet been recognized, and although the camp is very low and wet and remittent fever has occurred within the last fortnight the general sick rate is only 2.56 per cent. As will appear later I do not think the water is solely at fault in the spread of typhoid, but the more copiously and the purer it can be furnished the better will be the general health.

There is a general complaint of the difficulty of getting barrels for the storage of water, and, where it is hauled from springs, for its transportation. Some regiments have bought their own barrels, and occasionally a tank has been procured. Barrels are not particularly costly, and it is recommended that the Quartermaster's Department be authorized and required to supply these freely, and that those necessarily abandoned be expended.

(3) *Character of troops.*—As is well understood, the regiments at Camp Thomas have all been newly raised. Some of them contain many immature men; others have an undue proportion of men positively unfit for service from preexisting disability; the most come from very different climates; for some the food is unusual and difficult of assimilation; the most of those who have had field experience have been in military camps of short duration, where there was no occasion to take especial care of themselves. As a consequence, in everything pertaining to field hygiene, the mass are sadly deficient. Not only are the most of the officers practically as ignorant as the men, but the regimental discipline varies very much, and in many cases appears still extremely lax. This is important in its bearing upon the apparently little things that in the aggregate make up the foundation of camp sanitation. The dirty camps are the sickly camps here as elsewhere. But discipline and intelligence have their reward also. Without specifying instances low in the scale, attention is invited to the Eighth Massachusetts, already cited, where the positive enforcement of orders by punitive measures when necessary has resulted in the actual use of only boiled water for drinking, with exemption from typhoid fever and a low sick rate as a probable consequence. Again, in the case of the Fifth Missouri, I was informed by the colonel that especial pains had been taken to exclude lads, and that the command, whose surroundings were very bad, where 1,800 men had been confined since May 27 on an air

shut in by other regiments

with sinks immediately about them and constantly encroaching nearer and nearer, with necessarily narrowed and crowded streets, although typhoid fever has appeared, the actual sick list was relatively low, being 8.2 per cent. This I attribute to the greater resisting power of these full-grown men. An immature regiment must have been badly shattered under such conditions.

(4) *Climate*.—The heat and humidity at Camp Thomas are very great now. Early in the season the weather was dry, with occasional showers. Since the 20th of July, and perhaps earlier, copious rains have fallen. At first there were clouds of dust; later, the heavy rain has run off by the natural channels, except in the "flat woods," but has made the sinks still more difficult to take care of, has rendered the tents damp, and doubtless is increasing the causes of malarial disease.

(5) *Shelter, occupancy, and arrangement of camps*.—All the troops are under canvas and nearly all the canvas is overcrowded. The tents are of many patterns—a few shelter, more conical and conical wall; some State tents of various sizes, the most of which are so-called "flood" tents of the Mississippi Valley, very old and nearly all leaky, and the greater part the improved common or A-wall tent. The occupants vary from 2 in the shelter to 4 and 5 in the A, 6 or 8 in the "flood," and 15 or 16 in the conical.

Many of the regimental sites are precisely the same as those occupied from the beginning. A few of the regiments have been moved, and it is probable that more are now being changed, but at the time of my observation many of the commands had been in absolutely the same position for two months or more. Not only were the camp sites the same, but in the most instances the tents themselves stood where they had first been placed. In scarcely any instance was fresh ground available, as it should be, upon which the tents might be moved laterally every week or ten days. Consequently the ground itself is being poisoned imperceptibly, but persistently, by the human body without the disinfectant and redeeming action of direct sunlight upon it. The contents of the tents, such as blankets, straw, and the like, have been irregularly removed into the open air, but, as a rule, not often enough. Direct touch showed in many instances that these articles and the ground were damp. The camps, speaking generally, were crowded not merely as to inhabitants but as to neighborhood. There was abundant room between divisions and generally between brigades, but many of the brigade camps were too compressed, and with some of the regiments the compression was extreme and in defiance of all sanitary laws; this in addition to the tents themselves having too many occupants. The difficulty probably arose originally from the expectation that many more troops would be sent into the park, for whom space must be reserved. In some cases higher authority arbitrarily established the regimental lines. Whatever the reason, the effect is clear—the tents are overcrowded and without sufficient adjoining space, the streets are narrow, and the soil is becoming more and more charged with filth. Owing to reasons previously explained, competent sinks were made with difficulty and were multiplied on account of their shallowness and the rapidity with which they filled with water. They thus encroached more and more upon the open space and intruded toward the camps. For instance, in the Second Arkansas, Second Brigade, Second Division, Third Army Corps, the men's sinks were within 80 yards of the kitchens, and were very offensive. The kitchen sinks were intermediate and so full and so foul that maggots were abundant on the surface. In the Fifth Pennsylvania the camp site was lower than the sinks, and during recent rains they overflowed and flooded the camp. The sick report of that regiment was 11 per cent, including 25 cases recognized as typhoid and 15 supposed to be of that disease, with the sick rate increasing.

More than half of the men slept on the ground. In some regiments the tents were floored, in others cots and field bedsteads were arranged, but always at private or regimental expense. The motive in many instances doubtless was comfort, but in one regiment (Third Tennessee) the men bought the cots because they had learned by experience in civil life that it was harmful to sleep on the ground in that climate. In a very sickly regiment (Ninth Pennsylvania) the medical officer pointed out a very high three-story bunk, whose tenants he declared the healthiest in the command. A group of three is too small to reason from, but it is significant that among much sickness these men escaped. The sanitary advantage of being on the ground is freedom from dampness, and especially escape from the immediate influence of the ground air, which, under the conditions described, must be peculiarly deleterious. It is recommended that in all camps of position in southern climates the tents be floored, with a considerable space beneath, and that the floors be portable, so that they may be moved (within the camp) when necessary for change of site or for police. The expenditure of a few feet of lumber

when the regiment departs is well balanced by the greater physical efficiency of the men.

Quite independently of any specific contamination of the water supply (and were the general water supply thus contaminated the typhoid fever would also be general, which it is not as yet), the pollution of the soil by fecal discharges, specifically diseased or healthful, leads to the occurrence of diarrhea, to general physical depression, moderate fever, and undermining the man's health, and whether an imported case or not is necessary to fire the train, it is the universal experience of armies that outbreaks of typhoid fever will occur under just such circumstances. This is perfectly understood and always anticipated by sanitarians where precautionary measures are not carried into effect. In this case, besides having a congenial soil fertilized day by day for such seed, the seed itself was introduced directly by various regiments, as Thirty-first Michigan, First South Carolina (as reported, regiment has left the park), Fifty-second Iowa, which brought no acute case but was infected before arrival, and Ninth Pennsylvania, which has had nearly 100 cases in all. Besides which, certain regiments (Fourteenth Minnesota, Second Ohio, Third United States Volunteer Cavalry) have treated cases for considerable periods in the camps themselves. It can not be necessary to enlarge on the facilities for the spread of this disease that are afforded by fatigue, heat, moisture, overcrowding, dust, and flies; and all these are present.

(6) *Employment and control.*—The physical and the moral influences of occupation are factors that, speaking generally, do not seem to be thoroughly appreciated in this camp. I received the impression—it is only an impression and may be erroneous—that the most of the men were overdrilled. Nearly constant occupation or amusement is the best antidote for the ennui that extinguishes some soldierly vitality, and idle men are likely to be sickly men, but monotonous drills in hot climates have their limits, and should be arranged with discretion. In at least one command drill was from 6 to 8 a. m., and with parades from 3.30 p. m. until dusk. So far as temperature is concerned, the hours were well suited, but to fall in at 6 o'clock implies for the majority of men, where the sinks are few to a regiment, extreme discomfort in the matter of physical relief. The afternoon cessation of such exercises leaves the clothing drenched with perspiration and the men without opportunity to dry it or themselves before sleeping. I was told, but did not verify it, that some drills had been held at 1 o'clock, but that seems hardly credible. As far as I could learn, no attempt has been made to carry out practice marches or to move the commands from the park itself, but those battalions that have moved out for two or three days' target practice always return in much better health. In my judgment systematic military excursions should be utilized for the health, to say nothing of the efficiency, of the men. The discipline of the several regiments varies greatly, but where it is intelligently exercised the condition of the men is the better, as shown by their camp police, their personal appearance, and especially their abstinence from unauthorized water supply.

The refuse from the thousands of animals and the other insoluble débris of the camp add to the aerial and indirectly to the aqueous pollution. A few of the regiments attempt to burn their kitchen garbage in extemporized furnaces, but there has been no systematic arrangement, as might easily have been made, for formal crematories.

Some officers attribute much of the sickness to the sale by numerous venders of milk, pastry, fruit, and vegetables, a considerable part of which is supposed to be not in the best condition. It is probable that some of these comestibles lead to moderate diarrheas, as in fact the natural water does, and predispose to other intestinal troubles. With a fair inspection I believe that these peddlers add to contentment of the men, to many of whom the ration is not yet perfectly satisfactory. (I verified occasional complaints of unsound beef and spoiled bacon, but they were not numerous.)

This outline, which might be filled with very copious detail, for which I have the notes made on the spot for every regiment, should suffice to account for the serious and increasing sickness in that part of the army.

The inspection of the hospitals and of the sick lists of the regiments shows a complementary condition. My orders did not cover any question of supply or of administration, but it was absolutely necessary to touch these subjects at certain points in order to obtain an intelligent view of the situation.

Under the general plan of field administration all the sick who may not properly be cared for in their own tents, the "quarters" of garrison, are expected to be treated in the hospitals of their appropriate division, which are conveniently situated for access by ambulance. These are in turn subdivided in theory into brigade hospitals, both as to aerial, so that if neces-

sary its proper allowance of men and supplies can accompany such a detached command. At the time of my inspection there were four intact divisions in the camp, a cavalry brigade, an artillery brigade, and a headquarters escort, provost guard and employees. When the First Division, First Corps, left Camp Thomas about the 23d of July, it left 153 cases in the division hospital, doubtless because the general hospital could not receive them. The hospital was placed under Major Brechemin, United States Volunteers (captain, Medical Department, United States Army), with four contract surgeons as assistants. At the date of inspection, August 3, 88 cases remained, 60 of which were typhoid fever. There had been 17 deaths at the hospital in all, and several of those remaining were critically ill. When the change of administration was made the general condition of the hospital and of the patients must have been deplorable, judging from special reports in the office of the chief surgeon Third Corps, that I had the opportunity to read. From those reports some of the patients had bed sores, and the general administration lacked order and care.

At the time of my inspection there were six beds to a tent, including the typhoid cases. The general police of wards and grounds was fair and evidently improving. The natural drainage was good, but the site was bordered by low ground on three sides and any considerable enlargement would have been impossible. Of 33 privates of the Hospital Corps 20 were on duty as nurses in reliefs of twelve hours each. Originally there were no sheets, but these had been supplied by the Red Cross. There was no hospital fund. There was extreme difficulty in obtaining medical supplies, a week being named as the ordinary limit. For two days there was no corrosive sublimate to disinfect the bedding. No strychnia at all was obtainable. The hospital then needed both strychnia and whisky. Water was formerly obtained from a large spring, but now from a well. There is no filter, but it is supposed to be boiled. It is doubtful whether it all is boiled. The sinks which the patients are able to use are bad. A detail of 60 men sent by the Second Division from a Minnesota regiment the previous day to dig sinks declined to do so under the alleged orders of the division adjutant-general and merely policed the grounds. As no more patients were likely to be received, the condition of this hospital will improve, and under Major Brechemin's intelligent energy the confused records will be made more plain. In my judgment there should be hospital accommodation to which all the remaining cases might have been transferred when the division moved, but there was none. There were 5 cases of venereal disease awaiting discharge, although the command had actually left the park ten days previously.

Hospital, First Division, Third Corps.—At the time of my inspection, July 27, the hospital control was just being assumed by a newly-arrived officer, who could not be regarded as responsible for its defects nor be credited with its advantages. The staff consists of 5 medical officers, and the enlisted force was 95 noncommissioned officers and privates of the Hospital Corps. The hospital consists of 80 hospital tents for all purposes, containing at this date 170 patients. The tents are too crowded, containing 8 patients apiece, and they have had 10. There is insufficient space between the wards, the grounds are not adequately ditched, and the approach to the patients' sinks is very poor. The sinks themselves are very bad. The hospital is not divided into brigades. The Red Cross supplies about one-half of the clothing and the bedding. The floors that have been supplied the tents were furnished by regimental means. The hospital fund started with \$50, and there was \$48 at the end of the month, but considerable expenditures had been made by emergency funds supplied by the regiments. Very serious complaints are made as to the inadequacy of the medical supplies. No atropine is on hand, and the salol has been bought by private means. The chloroform supplied 1st-10th of June was regarded as inert, although this might depend on the inexperience of the administrator in open-air work, but the bottles contained a small part of the marked contents. Chocolate-coated quinine tablets in stock, Parke, Davis & Co., tablet 125 (563360 in red), are insoluble and found in the stools. I am informed in Washington that this is not supplied by the medical department. It was evidently regarded there as part of the regular supplies. The food as a whole is good, and the special diet kitchen was very neat and appeared excellent. Two of a case of 12 sides of bacon then on hand were bad, and I personally observed the maggots in them. There was only one very small coffee mill, apparently belonging to a mess chest, for the whole hospital and one man was employed all day in grinding coffee. The average duration of treatment, excluding the typhoid cases, is stated at three or four days. Cases are transferred to Leiter and to McPherson general hospitals. Fifty men are employed as nurses and are on duty from twelve to eighteen hours continuously, day by day. As far as observed, all the hospital cases of this division were taken into the hospital.

Second Division, Third Corps.—Nearly if not all of the regiments in this division maintain regimental hospitals. For instance, the Ninth New York has from 6 to 8 men in a local hospital out of 60 supposed to be in quarters. In the division hospital are 33. The regiment has had about 30 cases of typhoid, but the proportion of malarial cases is now large. First Arkansas has 37 in hospital and 65 in quarters. When examined there was a small regimental hospital maintained by individual subscription, in which were 8 cases of dysentery alleged to have been returned from the division hospital. First Maine has 7 men in the regimental hospital. Of the 42 officers, 7, or 16.67 per cent, are sick—all with typhoid fever.

The hospital of this division (Major Bradbury, First Maine, in charge) consists of 37 hospital, 8 conical, and 6 common tents, containing 285 cots and 250 patients. Eight medical officers are present for duty, with 6 stewards and 138 privates. Of the latter, 45 were men of the line detailed from regiments. To this date 1,190 patients had passed through the hospital, and 56 typhoid cases were present. Were all the men in the division who should be in hospital present it would be overcrowded, as it has been when men were at times literally upon the ground, and at other times medical officers have given up their own accommodations to them. Sometimes typhoid patients are returned to their regiments for convalescence in order to make room. Speaking generally, the condition of the hospital is very good. The streets are broad and well policed; the general police is excellent; the ordinary wards are very good, but the typhoid ward is too crowded, and formerly was still more so, when the cots touched each other. There is great difficulty in disinfecting the bedding. The hospital is brigaded, but not the attendants, and there would be difficulty were the command suddenly broken up. There are several brigade surgeons at this hospital, and it is plain that they do not regard that as their proper sphere. The records are well kept, but great difficulty is experienced in obtaining supplies. This seems to be partly technical and partly from insufficient stores. I examined the record of a requisition made on the 1st, acted on on the 13th, 17th, and 19th, and on the 22d filled in part. I saw another where two articles were supplied out of seventeen authorized. The hospital finds it practically impossible to get intestinal antiseptics, such as salol, or strychnia, or subgallate of bismuth. It is very largely dependent upon regimental and Red Cross funds, and a case of boxes to hold regimental supplies has been arranged to stimulate regimental interest, which is quite foreign to the principle of these organizations. The Red Cross supplies 1,500 pounds of ice daily; milk, food, comforts, and some absolute necessities, as medicines, themselves.

Second Division, First Corps.—Brigadier-General Poland, since deceased, particularly requested me to recommend that the water which is being drawn for his command from the spring of the Rev. Mr. Park, outside of the public grounds, should be paid for. He made this request with much earnestness, and it has proved to be one of the latest of his official acts. I heartily commend his request.

The hospital cases of the First Brigade doubled in July. The Second Ohio has 18 men in the regimental hospital regularly cared for by 2 men permanently and 4 men detailed day by day. The Fourteenth Minnesota has 5 in its regimental hospital, several of whom are quite ill, 1 being a typhoid fever case which there is no pretense of sending to the division hospital. In the Thirty-first Michigan 10 cases are being treated in the regimental hospital, which is evidently a fixed arrangement, and there is great unwillingness to send men to the division hospital. On the other hand, I questioned a man (Private Dyer, Company F) who had been sent to the division hospital 29th of July, but was not admitted. There was serious complaint as to the detaching of medical officers and noncommissioned officers and the employment of such men of high social and scholastic standing on menial duty—for example C. O. Ryan, I Company.

Regimental hospital, First Georgia, was equipped at Griffin partly by the Surgeon-General and partly by private means. The Fifth Illinois claims great difficulty in discharging men for disability, and has now a dangerous epileptic (David D. Edwards, Company A), who is a menace, but whose discharge has long been delayed.

Hospital Second Division, First Corps.—This contains 150 beds, but has 172 patients present. More cots have been sent for. There are 6 medical officers, 1 line officer as quartermaster and acting commissary subsistence, 5 stewards, and 89 privates. Occasionally individual nurses are sent for special cases from the regiment. The tents are too crowded—8 men each—and the tent police is not good. There were 20 cases there fit for a general hospital which could not be sent without orders. A greater capacity is much needed. There were 11 tents in possession not erected. The washing is done by contract, and the clothing disinfected, but not boiled. The hospital funds. The Red Cross sends da
ce, 10 gallons of milk; 4 chickens

weekly; eggs and lemons irregularly. Pajamas and night shirts are furnished by benevolent societies. There have been 586 patients all told, with 4 deaths (1 accidental, 1 from cerebral hemorrhage, 1 when a patient had been under treatment for typhoid fever for ten days in his regiment). Forty-two cases have been sent to the general hospital. There was serious complaint that the supplies were defective in strychnia, nux vomica, belladonna, opium (except camphor and opium and dovers powder), and the liquid preparations of opium and deodorized opium are much desired. There was no ophthalmoscope or no rectal speculum available. The diagnoses were not well kept in the register, little correction being made in the original ones sent from the regiments; but a distinction was drawn between "enteric" and "typhoid" fevers, with the claim that they are distinct.

Third Division, First Corps.—The Twelfth Minnesota, with a constant sick rate of 18 per cent, claims great difficulty in getting lime and vessels for boiling water. The Fifth Pennsylvania has a sick report of 11 per cent, with many typhoid cases. The police is not good and sickness is increasing. It is said that the quartermaster department declined to supply vessels and barrels for water, but boiling has begun lately. The sinks were infected and no disinfectant allowed. (This is the regiment already reported as being overflowed by its sinks.) Medicines have been very difficult to procure. It was supposed that they were "held in reserve." Consequently they have been purchased, and strychnia, which could not be had on requisition, was finally bought by direct authority of the Surgeon-General. The Eighth Massachusetts, whose discipline is good and which boils its water, has a sick rate of 2.56 although its camp site is bad. The Twelfth New York, in the same brigade, has a rate of 8.5, rapidly increasing, of which 95 per cent is believed to be typhoid. The regimental hospital has 19 cases. The regimental fund equipped the hospital and the medicine and food are supplied by charity. The Ninth Pennsylvania has a sick rate of 18 per cent. It brought 2 cases of typhoid fever into camp and has had nearly 100 altogether. It has 80 cases in general hospital and 30 in division hospital, which declines to receive more. In the regimental hospital are 28 men with detailed nurses, and there are reported by the surgeon a number of cases in the camp in quarters (tents) with high temperature. The Second Missouri has no field desk, and its reports of sick and wounded have been returned for quite unnecessary corrections. There are 15 men in the regimental hospital, which is floored and furnished by private means. There is the perfectly just complaint that no whisky and other necessary medicines can be had for the men who have been permitted, whether necessary or not, to be treated in camp. The First New Hampshire has more than 70 men under treatment in quarters, besides 25 on sick report on light duty and 25 in the division hospital. It has 20 typhoid cases, the first occurring about six weeks ago. The regimental surgeon reports 18 or 20 fit for the division hospital and many men in camp unable to attend sick call and who must be visited. There is also the repeated complaint of the difficulty of obtaining discharges.

Hospital, Third Division, First Corps.—This has 5 medical officers, 1 line officer, 8 regimental stewards, 89 privates, including 18 sick. Forty of these men are employed as nurses, but as they are untrained their value is small. Twenty-four of the detachment were transferred voluntarily and are good, but the Hospital Corps recruits are very poor as received. The nurses go on in two reliefs of twelve hours each, and special nurses are also obtained from the regiments for particular cases as required. There is also a daily regimental detail of 15 men. The capacity of the hospital is 30 tents with 206 beds, leaving 7 tents and 50 beds not pitched. The hospital is not brigaded. To the 10th of July there were 658 cases, and 26 deaths, chiefly from typhoid. Some cases appear to be delayed in reaching hospital, and the Second Missouri was cited as a regiment that preferred to treat its sick in camp. Some of the tents were crowded with 8 beds and others contained 6. The typhoid cases are not kept in distinct wards, but are mingled among the others. The police is fair, and the patients' clothing, wrapped in a poncho, is kept under their respective beds. The stools are disinfected with the bichloride and the clothing is washed by a woman living near, after chemical disinfection. The clothing is not boiled in camp. The hospital ground is small but the drainage is good. Fifteen barrels of water from the park spring are received daily. The water is boiled and partly filtered. Major Clark, Twelfth Minnesota, is in charge, and all the medical officers are regimental, who desire to rejoin their regiments when the command moves. Their present detached condition is resented by the line officers. It was not thus noted on the spot, but it is believed that this hospital, in common with the others, is largely dependent on the Red Cross and similar voluntary associations for support. The defects reported by the officers concerned are as follows: The Myers stove is inferior to the Buzzacott oven,

because it soon fills with ashes and requires specially short wood. But a single coffee mill was available, and it ground badly. Salol and other necessary medicines require to be bought. The medical field supply was pronounced insufficient and inappropriate for the climate. Some articles were in excess, but the most are deficient. The quinine is insufficient for the conditions, and there should be more condensed food, as beef and milk; and malted milk, which was spoken of very highly, was desired. It was charged that the needle holder broke the curved needles very easily, so that four were destroyed in an operation recently.

Besides these organized hospitals there are four others necessarily required. The cavalry and artillery brigades, each practically independent commands, have no reserve hospital, but care for their sick regimentally—namely, the Third United States Volunteer Cavalry, the First Illinois Cavalry, and the various batteries together. There is also a small hospital for the troops and others directly attached to headquarters.

Third United States Volunteer Cavalry has a sick report of 16.47 per cent., which is increasing. The first recognized typhoid fever case occurred in the previous week, and five were sent to the general hospital. There is reason to suppose, however, that a case now convalescent is actually one of that disease. There were 375 cases to July, but the July record was not yet entered. There are now 20 in the regimental hospital, chiefly remittent, and 189 in quarters. This regiment had just changed its camp to a new site, but its old one from want of police had been an offense to all who observed it.

The First Illinois Cavalry lying by the side of the last, also having just changed camp, has a sick report of 3.8 per cent. The regiment has been in the park since the 1st of June, and typhoid fever commenced about eighteen days ago, since which time there have been 5 cases. There were 19 cases in hospital, chiefly remittent and 29 in quarters. The hospital, which is regimental property of a unique pattern given by friends, was very neat and well kept.

The artillery brigade of seven batteries has a sick rate of 8 per cent, but unequally distributed, the most of the cases being in the Georgians. The hospital tents are of a somewhat larger pattern than the present regulation, but are neatly floored and contain six beds each. All the hospital water is boiled and filtered, but this is difficult of general application. It was complained that the Myers quinine was insoluble.

The headquarters sick report showed a rate of 2.8 per cent. The hospital was neat and the patients few.

Besides these conditions, chiefly physical, affecting the men, there are others that disturb the medical officers and are discouraging them. Excepting a very few regulars scattered among them, all of these volunteer officers, although filled with a laudable desire to do their best, are in an unaccustomed atmosphere, and what is plain to men of long experience is obscure to them. The stated reports, the requisitions, the certificates for discharge have given great trouble and have consumed time, often ineffectually, that might be otherwise occupied. Until very recently there have been two heads of corps and a chief surgeon superior to both, and the methods used do not appear to be uniform. One of the effects has been to cause great delay in the distribution of supplies, and, wherever the fault, there has certainly been great inconvenience to all concerned. There has been also not only delay, but, regardless of theory, deficiency which has been real and prejudicial. This matter of supply I touch with diffidence, as not coming strictly within the scope of my orders, and yet both it and administration have a marked bearing on the sanitary condition of the men. It is clear to me that filters, if they were to be used, were withheld too long and are insufficient in number; that the field desks for convenience of administration, and in view of their contents necessary for it, were not supplied in time (all have not yet been issued); the field chests have reached the most of the regiments only very recently; the standard allowance for a "brigade or division field hospital," one of which is normally three times the size of the other, is grossly inadequate under the conditions of a permanent camp such as this, that contains numerous and very serious fever cases; and, however it may come about, the hospital supplies are not replenished with freedom and dispatch.

Stated briefly, the troops at Camp Thomas are suffering not from special infection of water or from peculiarly malarious conditions of locality, although the latter will increase with the advancing season, but with the inevitable results of crowd poisoning, soil pollution, insufficient water, insufficient and imperfect shelter, a very great lack of facilities for the disposal of refuse, and the indirect consequences of ignorance in camp sanitation on the part of practically all the men and nearly all the officers. The regiments are very large and the medical staff, besides being almost entirely

of the time of all of them is occupied with preparing, correcting, revising and completing papers with which very few are familiar. The methods of getting supplies, of discharging the unfit, of accounting for persons are strange, and they naturally are discouraged. I think every medical officer in the camp is over-worked, and some of them severely.

Added to all this, the hospital accommodation has been exceedingly inadequate. For a camp of more than 40,000 new troops—I exclude those that have been detached—there are four division hospitals, with an aggregate capacity of 850 beds in which to treat every case not fit to remain in his own tent, or about 2 per cent of the gross amount. Added to this is a neighboring general hospital of nominally 255 beds, whose normal capacity is not more than 180, which has been overcrowded from its opening. The consequence has been that the camps are dotted all over with a vicious system of regimental hospitals not recognized, and properly not recognized, by orders, but tolerated as a makeshift. In a camp of this kind, filled with raw, poorly selected troops, 800 should have been the minimum for each division hospital, with the ability to increase to twice that number without delay, or large, well-appointed, easily accessible general hospitals should have been at hand. The eruptive diseases always ravage new rural commands, diarrheal diseases of varying intensity furnish their contingent for hospitals, typhoid fever should constantly be apprehended, and the malarious diseases, as the season advances, will add to the cases. For these reasons there should be a surplus rather than a deficiency of canvas.

My orders do not call for recommendations, but, under the verbal instructions of the Secretary of War to make such immediately on the more pressing points, which I have done already in a brief preliminary paper, I add, to complete this section of this report, that in my judgment rules to this effect should be applied to the troops at Chickamauga Park, and, *mutatis mutandis*, the same applies to all similar large commands:

(1) Every regiment (of new troops) that has occupied its present site more than thirty days should be moved.

(2) Wooden floors, to be movable within camp limits and to stand at least 4 inches above the ground, should be supplied all tents.

(3) All leaky canvas should be replaced.

(4) In a camp of this kind the occupancy of a common tent should be limited to 8 and of a conical wall tent to 10 men.

(5) All tents should have an area equal to their own base of free ground between them and the adjacent tents, and to and from this fresh ground they should be moved every week or ten days.

(6) At Camp Thomas quicklime should be very freely furnished for disinfection, although the rainy weather will make storage and transportation difficult.

(7) Facilities for boiling the drinking water and for storing it in barrels should be given each regiment at Camp Thomas.

(8) Crematories for all combustible refuse should always be supplied to each division of a permanent camp when such refuse can not be otherwise consumed. Much of the existing waste at Chickamauga should be burned by the park commission.

(9) Practice marches over short distances and of short duration should be put into operation for the Camp Thomas troops. These can not be made too long, because nearly all the regiments are charged with typhoid fever, and for the next ten days or fortnight new cases already infected will appear.

(10) It would probably be better to remove the Third United States Volunteer Cavalry (Grigsby's) altogether, although arrangements must be made to care for its present sick and those taken on the way.

(11) The division hospitals should be increased by one-half at least; the camp hospital about to be established be put into immediate operation, and the regimental hospitals be absolutely and incontinently abolished as soon as this new canvas is ready.

(12) A medical officer of experience, discretion, and energy should be attached temporarily to those headquarters, whose sole duty it should be to examine men presented for discharge, to prepare the certificates, and get them before the commanding general with the least possible delay. He should visit the various regiments and hospitals for this purpose, act independently of existing boards, and trouble the chief surgeon of the camp with them only for the purposes of record. There are many such cases to be acted on whose consideration occupies much time of the chief surgeon that might be more profitably employed, and the presence of the unfit men in the commands is harmful.

I also inspected the sanitary condition of the Leiter general hospital, as required by my orders. The building is that formerly known as the Park Hotel, and at

the time of my visit, July 31, its capacity was reckoned as for 255 patients. On that date there were 19 vacant beds. The hospital is commanded by Maj. E. C. Carter, who is his own executive officer, quartermaster, and subsistence officer. His medical staff consists of Major Bayne, United States Volunteers, and 5 contract surgeons. He has 2 stewards, 1 acting steward, and 30 privates, Hospital Corps, including 2 absent and 3 present sick. There are 30 female contract nurses, 10 Red Cross nurses, and 2 excellent volunteer nurses. Half of the Hospital Corps are on nursing duty. There are 10 authorized civil laborers, among whom are 4 vacancies. There are three large rooms on the lower floor, formerly the dining, reading, and billiard rooms, and a detached dancing pavilion in the grounds. There are also a number of small chambers on the second floor, a number of beds not occupied at the time stand in the second story hall, and 30 convalescents sleep on the veranda. Two wards of 16 tents in all, each to contain 5 beds, a total of 80 beds, are in the grounds as yet unequipped.

All the large rooms are greatly overcrowded, the detached pavilion alone giving no odor. It has abundant eaves ventilation and tolerable cubic capacity. The floor space in these rooms is 46.5, 58, 59, and 65 square feet, respectively, and all but the reading room have four rows of beds, the ends of those in the central rows being in contact. There is very little working space, the floors in the nature of the case can not be kept clean, and, in general terms, these rooms contain twice as many patients as they should, for there are practically no vacant beds and the cases are all serious. None of these rooms has immediate closet facilities, and the discharges from the dining room and reading room have to be carried through the lower part of the building to the closets adjacent to the billiard room. The floor of this ward is below the level of the surrounding earth. There is a basement water-closet now undergoing repair, in which 4 closets and 2 urinals were about to be introduced. The walls of the first floor are dirty throughout and require kalsomining. In the upper story the rooms have too many patients, considering their character. The walls here are clean. There are water-closets on the halls of this floor.

I am told that when the hospital was first occupied the sewer was occluded for a considerable distance, that the sewage debouched so that ultimately it might have polluted the Chickamauga Creek, and that the closets within the house were untrapped. Manholes have since been introduced, a masonry basin, discharging the fluid contents automatically, and from which the solid residuum is removed by hand, receives the sewage and protects the river. The closets are now all trapped, and the building appears to be properly protected in that direction. In one outhouse closet, when inspected, insoluble waste was found in the bowl, and the apparatus was temporarily disarranged. The rain-water leaders discharge into the sewer, and the pipe for flushing the sewer proceeds from the base of the tank that supplies the house with water.

The water is drawn from the adjacent Crawfish Spring, whose flow is estimated at 60,000,000 gallons per diem. To the eye that seems an exaggeration. The tank and the engine belonging to the hotel proved insufficient, and a 30-horsepower engine, furnishing 8,000 gallons an hour, has been in operation since June 25, and a new tank of sufficient capacity is in process of erection. The spring is essentially a pond, somewhat liable to contamination, although there is no direct evidence thereof. Distilled water has been offered by a trustworthy company in Chattanooga at 2½ cents per gallon.

Besides the hospital fund there has been spontaneously sent \$240 from private sources, which has been spent chiefly for cows and food. Many gifts have been sent and offered, including one of a carload of milch cows from some one in Chicago. The slowness by which certain wants are supplied through the regular channels has made such extraneous aid very acceptable.

The hospital corps is not only ill disciplined, but is very poorly clothed. The female nurses are said to be efficient.

To the end of July there had been 850 admissions to the hospital, all from the neighboring camp, and 80 per cent of the cases were of typhoid fever. It had happened that the place has been overstocked, as when 30 patients were sent to fill 20 vacancies.

There is no guard for the public property, such an application having been refused. One noncommissioned officer permanently detailed and 1 private by roster act as watchmen. There is no stable for 10 head of stock that are herded.

The commanding officer expresses a desire for a line officer to act as quartermaster and commissary; he wishes more and better clerks; he desires an executive officer; he would prefer half of his contract surgeons to be more experienced men.

According to my observation the hospital is well managed. It is, however, sadly overcrowded. In my judgment the buildings should not contain more than

130 beds. It is possible to put up in the grounds 4 more groups of 40-bed wards, making 240 under canvas, or 370 beds in all. Perhaps room could be found for 400, but the kitchen and other administrative facilities would be strained. The lower story should be thoroughly kalsomined, the floors carefully cleaned, and in the unventilated large rooms some of the simpler forms of ventilation by tubes be introduced. In one of those rooms there are electric fans, but their chief value is to stir up the air, not to replace it.

As a whole, the sanitary condition about Chickamauga Park is not good, owing to preventable conditions, and I believe that measures similar to those herein suggested should be carried out.

REPORT ON THE OUTBREAK OF TYPHOID IN CAMPS AT JACKSONVILLE, FLA., BY
LIEUT. COL. L. M. MAUS, UNITED STATES VOLUNTEERS, CHIEF SURGEON SEVENTH ARMY CORPS.

[Dated August 22, 1898.]

I have the honor to state that we have quite a large number of cases of typhoid fever undergoing treatment in the three division hospitals of this corps. A large number of these cases, in my opinion, resulted from the use of infected water in the various State camps from which regiments were sent. I am, however, of the opinion that a great many of them originated around and about Jacksonville also. The water system of Jacksonville is artesian, and may be regarded as excellent. It is saturated with sulphureted hydrogen when coming to the earth's surface, but this gas soon evaporates, leaving the water very pleasant to drink. Unfortunately, around the suburbs of Jacksonville are a large number of surface and driven wells. Many of these wells are but from 18 to 20 feet deep, and are located close to the habitations of the people who use this water. The soldiers going out on drills and target practice, etc., frequently, I have been informed, use water from these wells. I believe that this may account for a great many of the infected cases. Then, again, the milkmen who live in the suburbs rinse their cans in this water, and at times leave some in the cans, which mixes with the milk, and this probably is productive of typhoid infection.

One company of the First Wisconsin has suffered considerably from typhoid. This company was located on the main street, over which was hauled the fecal matter by the scavengers at night. It is believed that a good deal of the fecal matter splashed out on the road and was absorbed by these men, who were sleeping near by, through the medium of the dust, which probably was infected. The First Wisconsin has suffered more than any other regiment here in regard to the number of typhoid cases.

Of course a great many cases would naturally occur in a Southern climate, because, in my experience, I have always found that men sent South in midsummer are liable to become enervated and more susceptible to fevers than the natives. A part of these cases were of a very malignant type and proved to be fatal. Autopsies, as a rule, have been made and exposed ulcerations and perforations in some cases.

One company of the Second Illinois ate on the 29th of May a lot of tainted meat, and within ten days or two weeks thereafter a large number of cases of typhoid fever appeared in that company. It would seem as if the ptomaine poisoning in some way made these men susceptible to the typhoid poisoning. This company enjoyed the same surroundings as the others, and there is no way to account for this large number of typhoid-fever cases except in the way indicated. I will also state that many of these men were quite ill for a week or ten days after eating this meat, suffering from gastrointestinal irritation.

The regiments of the Second Division have been removed to fresh camping grounds, and everyone is more keenly alive to the necessity of looking after the sanitary condition. Of course, medical officers can not accomplish all that is necessary single-handed, and it is very difficult at times to have their suggestions carried out by those in command.

I have recommended to the corps commander that small pavilion hospitals, made out of rough lumber, be constructed near each division hospital, with a capacity of 100 beds, for the treatment of the serious typhoid cases. I desire that these men shall receive every care, and for this reason have asked that these buildings be constructed, so that they can get regular hospital treatment. I also believe it for the best interests of the service that we should have a number of trained female nurses, as well as male nurses, to care for these cases. It is very likely that we will have more fever cases during the month of September than at

present, as that is the most sickly season of the year here, and I wish to prepare for any emergency. I, therefore, would like to have at least 50 well-trained female nurses sent here within the next week, and hope that Dr. Brien, who has gone North to get male trained nurses, will be successful in getting 100 of them.

I intend to make requisitions for bath tubs on wheels, in order to give them the tubbing process, because I believe that better results can be obtained from that method of treatment than any other. It is almost impossible to give patients tub treatment in hospital tents, especially when there are six or more patients in each one. I am glad to say that we are getting along here very nicely. Barring the large number of typhoid-fever cases, we have practically very few sick men.

The three division hospitals have been in operation for a long time and seem to have given general satisfaction. It is not to be expected that everybody will be satisfied, and hence there has been a good deal of criticism from various sources, emanating from women and others who are not capable of appreciating the difficulty of caring for the sick in the field. I believe our division hospitals are far ahead in every way of what was contemplated in the original orders by the War Department. I have had furnished to the hospital, in addition to what is supplied by the Government, pajamas, nightshirts, sheets, mattresses, pillows, electric fans, foods of all sorts; in fact, hundreds of dollars have been spent on the division hospitals of this corps in addition to what was allowed by the Government.

I wish to thank you for your generous support in granting me everything that I have asked for. I wish to state that nothing of any moment has been refused me that I have asked you in regard to providing for the sick of this corps.

REPORT OF THE CHIEF SURGEON OF THE FIFTH ARMY CORPS, GIVING A BRIEF ACCOUNT OF THE OPERATIONS OF THE MEDICAL DEPARTMENT FROM APRIL 23, 1898, TO JULY 23, 1898, BY LIEUT. COL. B. F. POPE, CHIEF SURGEON, UNITED STATES VOLUNTEERS.

In compliance with telegraphic instructions from the Secretary of War, dated April 16, 1898, I proceeded on the 19th day of April with the Seventeenth United States Infantry from Columbus Barracks, Ohio, to Tampa, Fla., arriving there about the 21st of April. This organization, and a number of other regiments rapidly following, were placed in camp on Tampa Heights, an elevated plateau, about 2 miles from the center of town. The ground was apparently well adapted for camping purposes, being a sandy loam, subsoil water, at that time about 12 feet from the surface. There was good shade from pine trees and scrub oaks. The water supply from the city reservoir was delivered by hydrants through 8-inch mains. The quality was good and the quantity ample for all purposes of men and animals.

Within the next few days there were gathered the following regiments of infantry, which went to form what was later known as the "Second Independent Division:" The Sixth, Tenth, Twenty-first, Thirteenth, Ninth, Twenty-fourth, Twenty-fifth, Twenty-second, Seventeenth, and the Fourth, to which was later added the Eighth, Sixteenth, Twelfth, Seventh, and Second United States Infantry, these latter regiments forming a camp below the Tampa Bay Hotel.

On the 23d of April, by the operation of General Order, No. 3, as senior medical officer of the command I was announced chief surgeon, and reported to the commander, Brigadier-General Wade, accordingly.

With the approval of the general commanding, Maj. Henry S. Kilbourne, surgeon, and Capt. William F. Stephenson, assistant surgeon, were announced as chief surgeons of brigade; and later, as the number of commands increased and the organization of the Fifth Army Corps was completed, the following chief medical officers were designated:

Lieut. Col. B. F. Pope, chief surgeon, United States Volunteers, chief surgeon of the corps; Maj. Valerius Havard, chief surgeon of the cavalry division; Maj. Henry S. Kilbourne, chief surgeon of the Second Division; Maj. M. W. Wood, chief surgeon of the First Division; Maj. F. J. Ives, brigade surgeon, United States Volunteers, as chief of General Bates's independent division.

With a view to ascertain the amount of supplies on hand, I at once proceeded to obtain from medical officers accompanying the command a list of such medical and surgical stores and instruments, tents, ambulances, public animals, etc., as they had brought with them from their stations, directing them at the same time to make requisition for such supplies as they might need, forwarding the same to the chief surgeon. A consolidated list of these memoranda, prepared for future reference, was left with the acting medical supply officer at Tampa, Fla., and is not now accessible.

It was found that while nearly all of the regiments had brought with them their medical and surgical chests, field cases of instruments, and camp outfit of mess chests, food chests, etc., there were many regiments which were lacking in surgical dressings and medicines, and most of them in transportation for such supplies as they had brought.

For this reason on April 27 I telegraphed the following to the Surgeon-General:

"Please have forwarded by express 8 pack saddles complete for medical and surgical chests, 10,000 first-aid packages, 1,000 rolls wire splints, 100 rolls of adhesive plaster, 1,000 rolls of cotton batting, 1,000 yards of absorbent gauze, 100 bottles of sterilized catgut, 1,000 packages of absorbent cotton, 500 grams of silk ligature, 500 packages of sheet lint, 50 dozen towels, 50 pounds of soda sulphate, 10 Arnold sterilizers, 60 yards of rubber sheeting, 10 yards of rubber drainage tube, 3 sheets of rubber intestinal cylinders, 100 boxes of roller bandages, and 300 tubes of vaccine virus."

In reply to my telegram, I was informed that the supply of antiseptic dressings, according to list selected by the Surgeon-General, was being made up and would be forwarded shortly, and later some 20 boxes of surgical dressings were received at Tampa, which were issued to the various regimental surgeons as they arrived. These boxes were complete and in every respect fitted for antiseptic surgical work.

The arrival of the cavalry commands and the batteries of light artillery rapidly followed, and their camps were located partly at Port Tampa, near Tampa Bay Hotel, and some at Lakeland. The supplies brought with the cavalry commands were ample in every respect, both in medical and hospital material, tentage, and ambulances. The batteries of light artillery were practically destitute of hospital tentage, and several of them of medical and surgical chests, the batteries from the Pacific coast being best equipped.

The vaccination of troops began early in May and was continued without interruption until the protection of the whole command was assured.

Field hospitals.—The establishment of field hospitals other than regimental early occupied the attention of the chief surgeon, although he was informed that it was the desire of the War Department that the regimental system should remain intact, it being the intention to have 1 medical officer of the Army with each regiment of infantry, 1 steward or acting steward, 10 privates of the Hospital Corps, tents, field furniture for a field hospital to accommodate 10 patients, and field supplies for three months. (See letter Surgeon-General's Office, April 20, 1898.)

With a view to the establishment of a divisional rather than a regimental system of hospitals, I succeeded in having the following orders promulgated by the commanding general:

[Special Orders, No. 2.—Extract.]

HEADQUARTERS UNITED STATES FORCES,
Tampa, Fla., May 3, 1898.

2. A field hospital for the troops at Port Tampa will be located on convenient ground adjacent to the camps of the two commands now at that point.

Major La Garde, surgeon, is relieved from duty with the Ninth Cavalry, and will establish the hospital above indicated. His assistants will be designated in further instructions. In addition to his duties as commanding officer of the hospital, Surgeon La Garde, as senior medical officer present, will have general supervision of the medical officers with the cavalry and light artillery at Port Tampa, Fla. He will report to the chief surgeon at these headquarters for further instruction in regard to his duties.

By command of General Shafter:

J. B. BABCOCK,
Assistant Adjutant-General.

HEADQUARTERS UNITED STATES FORCES,
Tampa, Fla., May 3, 1898.

The COMMANDING GENERAL,
Infantry Division, United States Forces, Tampa, Fla.

SIR: The commanding general desires that a division field hospital be established in your command at Tampa Heights. The chief surgeon at these headquarters has been directed to designate to you from the medical officers of your command the commanding officer of the hospital and his assistants.

Very respectfully,

J. B. BABCOCK,
Assistant Adjutant-General.

To regulate the formation of these hospitals and the transfer of regimental hospital equipment and personnel, the commanding general issued instructions which were afterwards promulgated in the general orders following.

[General Orders, No. 14.]

HEADQUARTERS FIFTH ARMY CORPS,
Tampa, Fla., June, 6, 1898.

The chief surgeon of the Fifth Army Corps will assign for division hospital and ambulance train service such members of the Hospital Corps detachments, tentage, ambulances and wagons, animals and their equipments, hospital and medical supplies and field equipments, as may be required and designate the medical officer to receipt for the same.

A minimum allowance to be retained with each regiment will be as follows:

One acting hospital steward and 1 private, 1 hospital and 1 common tent, 1 ambulance and necessary animals fully equipped in order to preserve the regimental organization.

Officers detached for duty at division hospitals are authorized to take with them their allowance of tentage, giving receipt for the same.

Whenever necessary, the chief surgeon is authorized to take any or all ambulances assigned to regiments for temporary use of the field hospitals.

The commanding general also authorizes the chief surgeon to instruct chief surgeons of divisions to make transfer for temporary service with field hospitals, ambulance trains, dressing stations, or regiments, of such regimental medical officers, members of the Hospital Corps, ambulances and medical or hospital supplies at any time when such action becomes necessary for the proper care of the sick or injured under their charge.

By command of Major-General Shafter:

E. J. McCLEARNAND,
Assistant Adjutant-General.

Under the operation of these orders the formation of four field divisional hospitals was begun, the preliminary steps being to gradually enlarge the regimental field hospital of the Ninth Cavalry under Major La Garde, surgeon; that of the Thirteenth Infantry under Maj. A. H. Appel, surgeon; later the regimental hospital of the Sixth United States Cavalry under Major McCreery, surgeon; and lastly, that of the First Division under Maj. M. W. Wood, surgeon. This latter hospital was formed too late to open for the reception of patients before the embarkation, but after the landing of troops at Siboney it became the advanced field hospital and nearest the line of action at San Juan Hill, near Santiago de Cuba. The gradual absorption of regimental hospitals went on until Major La Garde's hospital was expanded and equipped to accommodate nearly 150 patients; that of Major Appel, 150; and that of Major McCreery, for the cavalry division, about 65 patients. Later the hospital of the Twenty-second Infantry was moved to Jacksonville, Fla., where it became the nucleus of the field hospital of the Seventh Army Corps.

The equipment of the second divisional hospital under Major Appel was made complete at an early date. It contained about 85 cots, a sufficient outfit of furniture and messing fixtures. The operating tent was well supplied with enameled steel folding operating tables, steam sterilizers, and water heaters; a bathing tent, bath tubs, wash basins, and other extra appliances were purchased under authority of the Surgeon-General. As the demands for space increased additional tentage was received by Major Appel until the capacity was increased to nearly 180 patients.

The personnel consisted of Maj. A. H. Appel, surgeon, in command; Asst. Surgs. Deane C. Howard, and L. P. Smith, United States Army; Acting Asst. Surgs. W. E. Parker and U. S. Bird, United States Army, as assistants. There also was allotted a detachment of acting stewards (number not recollected) and about 85 privates of the Hospital Corps.

The hospital at Port Tampa, known as the reserve or divisional hospital No. 3, was about the same size and similarly equipped; Maj. Louis A. La Garde, surgeon, in command, Asst. Surgs. M. W. Ireland, H. A. Shaw, James M. Kennedy, and later Asst. Surg. P. C. Fauntleroy. I am unable to recollect the number of hospital stewards, but the Hospital Corps detachment numbered some 87 privates and noncommissioned officers.

The tentage was received partly from the various commands centered at Port Tampa and partly from the depot quartermaster at Tampa on requisitions approved by the chief surgeon.

Divisional hospital No. 1, under command of Maj. M. W. Wood, surgeon, was formed late in the month of May, and much difficulty was experienced by that officer in securing an adequate amount of tentage and furniture, the regimental supply being nearly exhausted by drafts made for the other hospitals. A special

requisition for 80 hospital tents was made by the chief surgeon and approved by the general commanding. On receipt from the depot quartermaster a very large number were found to be unserviceable from lack of guy ropes and former wear, so that the second divisional hospital was drawn upon to assist the equipment of No. 1. Major Wood's surgical outfit proved later to be an admirable one, the supply of instruments, dressings, sterilizers, and tables sufficing to meet the great strain put upon it by the battles of July 1 and 2, 1898.

The personnel of this hospital consisted of Maj. M. W. Wood, surgeon, in command; Maj. R. W. Johnson, surgeon, United States Volunteers; Asst. Surg. G. C. M. Godfrey; Acting Asst. Surgs. Hamilton P. Jones and F. J. Combe. Later Acting Asst. Surg. T. H. Marshall, United States Army, was attached to the hospital.

Ambulance trains.—With the formation of the several field hospitals came the simultaneous formation of two ambulance trains. That at Port Tampa was made up by drawing in ambulances from the Ninth Cavalry and the several artillery commands adjacent, also by requisition upon the depot quartermaster. Mules were received later and harness last of all. The train was placed under the command of First Lieut. J. M. Kennedy, assistant surgeon, and although left behind for lack of transportation on embarkation of the Fifth Army Corps a part of it was forwarded in time to render most valuable service in the campaign against Santiago de Cuba.

The train of the second divisional hospital consisted of some seven ambulances. While its formation was completed prior to embarkation, it also was left behind with a portion of the hospital at Tampa Heights, for lack of transport room.

The first divisional hospital had a few ambulances, which were left behind on embarkation. Three ambulances which had been taken apart and stored on one of the transports were later assigned to this hospital and became of much service under charge of Assistant Surgeon Godfrey in removing wounded from the field at San Juan Hill and El Caney.

Wagon transportation.—To every hospital it was designed to assign a sufficient number of 4 and 6 mule wagons to haul all of the tentage and supplies. For this purpose the second and third divisional hospitals had about eight wagons each, with a complete equipment of mules and civilian drivers. I can not recollect how many were with the First Division or the cavalry command under Major Havard. At all events they were all left behind on embarkation and never seen again by the medical department of the Fifth Army Corps.

Hospital Corps companies.—The next step in organization of the medical department of the corps was the formation of Hospital Corps companies, which was authorized by the commanding general in the following general orders:

General Orders, No. 3 (new series).

HEADQUARTERS FIFTH ARMY CORPS, Tampa, Fla., May 29, 1898.

Upon recommendation of the chief surgeon, the following will be the organization of the members of the Hospital Corps now on duty with or hereafter attached to the Fifth Army Corps.

There will be three companies which are to be known as Hospital Corps companies and all of them under the control of the chief surgeon of the corps.

Each company will be commanded by an officer of the Medical Department, selected for that purpose by the chief surgeon, and to these companies will be transferred all Hospital Corps privates, hospital stewards, and acting hospital stewards, except the following, who are retained with the several commands to which they are now attached:

To every regiment of infantry, 1 acting steward and 1 private as orderly. To every regiment of cavalry, 2 acting stewards and 2 privates as orderlies for medical officers. To every battalion of artillery, three batteries each, 3 acting hospital stewards and 3 privates.

Descriptive lists will be prepared and forwarded to the officers designated by the chief surgeon, and later invoices for the Hospital Corps, quartermaster, and ordnance department equipments for each Hospital Corps man.

Receipts will be given by the commanders of the several Hospital Corps companies for the property transferred.

According to the necessities of each organization, as represented by their medical officers, details from the Hospital Corps companies will be made by the chief surgeons of division for temporary duty with the several commands, which detail will terminate at any time at discretion of the chief surgeon of the corps.

By command of Major-General Shafter:

FRED. A. SMITH,
Captain, Twelfth Infantry, Acting Assistant Adjutant-General.

The work of organizing the first of these companies was assigned to Capt. E. L. Munson, assistant surgeon, who was attached to the office of the chief surgeon for that purpose, and also to act as his executive officer. But before the necessary books and blanks could be obtained and the transfers made, the embarkation of the corps took place, and the work was indefinitely postponed. It was the intention of the chief surgeon to draw into these divisional companies all of the Hospital Corps men, so as to have them entirely under the control of the medical department and not subject to the control of regimental commanders. In case of necessity the number of Hospital Corps men could be increased with any command or be drawn from other commands by mere detail without the intervention of higher authority than the division surgeon, who would be the best judge of the needs of his troops in any given emergency. To give effective working to the plan a company of at least 104 enlisted men would be necessary, exclusive of those employed in divisional hospitals and on regimental service.

Mounts for Hospital Corps privates, etc.—The question of mounts for Hospital Corps men and for acting assistant surgeons was taken up as early as practicable, as there was an almost universal demand on the part of medical officers that the provision of the regulations in this respect should be complied with if possible.

On requisition being made to the depot quartermaster for the necessary animals, it appeared that neither animals nor equipments were on hand, nor were they likely to be unless provided from some other point than Tampa.

On May 11 the Surgeon-General was asked to confer with the Quartermaster-General with view to securing the mounts if possible. This request elicited the information that at Chickamauga there had been some 200 horses purchased for the purpose, and directions were given that efforts be made to locate them in Tampa. On the 15th of May I replied that the 200 Hospital Corps horses could not be located by the quartermaster at that point, but on the 17th of May it was reported to me that the 200 horses had arrived, and I at once directed the preparation of the necessary requisitions, so that they could be distributed according to the requirements of the command. Later instructions were received that only the Hospital Corps men attached to mounted commands should be mounted, the orderlies of medical officers, acting assistant surgeons, and hospital stewards being excluded from the provisions. Saddles and other horse equipments were secured later, after much difficulty. In the meanwhile the horses had been issued by the depot quartermaster as requisitions were made, so that very many of the 200 had been distributed, which furnished a mount for nearly every one of the Hospital Corps privates requiring the same then on duty with the command.

Under date of May 27, and in reply to an inquiry on part of the Surgeon-General, who wished to know the number of horses required, I wired that "according to the scheme published May 20, 1898, from the Surgeon-General's Office, 293 mounts would be required, but according to present assignment about 170."

This closed the incident of mounts for the medical department, so far as the Fifth Army Corps was concerned, as on embarkation of the command they were all left behind for the lack of room on the transports to carry them to Cuba.

NOTE.—The following telegram sent by me is of interest as bearing upon the case: "May 18. Tampa, Fla., to Surgeon-General, Washington, D. C. Authority is requested to provide mounts for all acting assistant surgeons; also for one orderly for every medical officer serving with foot troops. There are more than enough horses for the hospital corps now at this place. We have 167 privates and 29 acting stewards present with the command."

Transfer of sick to Fort McPherson, Atlanta, Ga.—In reply to inquiry in regard to the disposition of patients who might be too ill to accompany the command in case of embarkation, the Surgeon-General wired the following under date of May 2, 1898: "Men too sick to go with command should be sent to hospital at Fort McPherson, Atlanta, Ga."

In compliance with these instructions I proceeded, about May 11, to gather from the several field hospitals a number of men in whose cases there was no prospect of early return to duty. Many of them were venereal bubos, which unfitted the men for marching and made them a burden upon the medical department. Others were convalescent from typhoid fever of a mild type, rheumatism, etc. Cases of measles and severe typhoid were not forwarded. A small detachment of Hospital Corps men accompanied them, and they were supplied with food and medicines for three days. Necessary amount of hospital fund to purchase delicacies for the trip was drawn over to the Hospital Corps man in charge. The party, I was informed, returned safely.

About two weeks later a set of patients, and placed in charge of Woodson, United States Army, arriving safely.

About this date the chief surgeon recommended that a number of so-called tourist cars be chartered and fitted up for special service in the transfer of patients to the North. As the Plant System and the Southern railways did not have these cars in stock they were difficult to get at the point indicated. After our departure I believe that a regular hospital train was established and run from Tampa and Jacksonville to the northern hospitals.

Medical supplies.—The establishment of a medical-supply depot at Tampa became an early necessity, and, as already stated, a storeroom was secured from the depot quartermaster, where all stores received from New York could be placed and unpacked for issue. A large number of requisitions, forwarded by medical officers on duty with regiments arriving from Chickamauga, were sent to the chief surgeon from Washington with directions that they be filled from stores in the Tampa depot. As other requisitions were coming in the chief surgeon directed the acting medical-supply officer to consolidate all of them, with the view of making a general requisition according to the supply table approved by the Secretary of War under date May 9, 1898. His most pressing needs were wired to the Surgeon-General, as follows:

"May 16, 1898. Surgeon-General, U. S. Army, Washington. Send one medical and surgical chest, a case of surgical instruments, one desk, mess and food chest, commode chest for Engineer Battalion. All of above supplies have been issued to other commands."

"May 17, 1898. Tampa, Fla. The Surgeon-General. Send to me at Tampa 144 cans condensed milk, 180 cans beef extract, 60 cans tea, 300 bottles chloroform, 10,000 first-aid packets."

"Tampa, May 17, 1898. The Surgeon-General. Chloroform and beef extract sent May 9 have been distributed to regiments. The amount requested is for regiments arriving from Chickamauga."

In reply to the above, the chief surgeon received the following telegram:

"Washington, D. C., May 18, 1898. * * * Beef extract and chloroform ordered from New York to-day."

In addition to the above the chief surgeon received information that advance medical chests for issue to troops and other medical supplies had been ordered from New York. But as the stores were late in arriving, and as the demands for medicines continually increased, the chief surgeon wired the following:

"May 25. Tampa, Fla. Surgeon-General, U. S. A., Washington. Authority to purchase medical supplies for volunteer regiments is asked. They have nothing. My supplies are nearly exhausted. Gandy relieves Woodson at medical depot. Send 2,000 vaccine bulbs (for volunteers)."

In reply to the above, two orders were received, one from Col. C. R. Greenleaf, under date of May 26:

"Pope, chief surgeon. Deliver to Admiral Remey at once 300,000 quinine pills. Purchase for daily needs of troops here, until supplied by the Surgeon-General." And another under date of May 28, 1898:

"Gandy, supply officer, Tampa, Fla. Buy medicines absolutely necessary. Ample supplies will be sent in a few days. Sternberg, Surgeon-General."

"Washington, D. C., May 29. One million quinine pills sent to your supply office. Sternberg, Surgeon-General."

Under the above authority purchases in Tampa were commenced, particularly magnesium sulphate, bismuth subnitrate, camphor and opium pills, compound cathartic pills, and other drugs needed to treat the increasing number of those sick from camp diarrhea, dysentery, constipation, and other digestive diseases incident to camp life.

The chloroform and beef extract, also the first-aid packets, arrived promptly, but the other supplies continued to delay. Surgical operating tables put in an appearance and other articles of utility, but it was still necessary to keep up the purchase of drugs, until the city was about stripped.

On June 1 I received the following from the Surgeon-General:

"Washington, D. C., June 1, 1898. Already authorized to purchase supplies for immediate use. Report promptly your needs and any shipment received."

Under date of June 2 I wired the Surgeon-General:

"Tampa, Fla., June 2. Can get no trace of medical supplies here shipped from New York. The depot is nearly empty and the town about stripped. Send 2,000 points vaccine virus to acting medical supply officer by express, as I expect to leave any day on transport."

Under the belief that the supplies thought to have been forwarded from New York were lost en route, I inquired of the depot quartermaster whether duplicate bills of lading had been received. He stated they had not, and wired the shipping quartermaster in New York to send a tracer to hunt up the lost supplies.

On June 2 I wired the Surgeon-General as follows:

"Medicines not yet found. The depot quartermaster at New York must telegraph number of car in which located."

Believing that the freight traffic was almost hopelessly blockaded, as there were at this time nearly 1,500 loaded and unloaded cars standing upon the tracks in Tampa, and as an equally hopeless blockade existed in the Post-Office Department, I wired the following to the Surgeon-General:

"Tampa, Fla., June 4. Order sent by express 200 ounces bismuth subnitrate, 50 ounces of powdered opium, 100 bottles of castor oil, 50 bottles of calomel and soda tablets, 50 bottles of morphine tablets."

So far as I know, the above was not received until after the embarkation of the expedition. But on the 5th of June the stringency was relieved by the arrival of some 200 packages of stores, the receipt of which I acknowledged by wire to the Surgeon-General. The issue of these was begun at once, the field hospitals receiving the first share and next the volunteer regiments who had been lacking sadly in every sort of medical supplies. Then the requisitions were filled with such articles as were on hand. Fortunately the supply of quinine was large enough to meet all possible demands. What was the actual amount and the character of the issues can best be given by Capt. C. M. Gandy, assistant surgeon, who was in charge of the supply depot.

On the 8th of June, at 10 p. m., the chief surgeon received the order for embarkation. The field hospitals had been warned and the medical supply officer directed to set aside one-half of the stores remaining as a reserve stock to be taken with the expedition.

At midnight I entered the medical storeroom and took out two wagon loads of supplies, two more loads being sent down by Captain Gandy to Port Tampa the next morning. The first lot was taken on board the headquarters transport *Seguranca*, and the second on the transport containing the second divisional hospital, under Major Appel, which, I think, was at first the *Comal* and later the *Olivette*.

The embarkation and condition of transports.—The embarkation of the Fifth Army Corps on transports took place on the 9th and 10th of June, at Port Tampa, Fla. The ships were drawn into a long canal, on one side of which trains of cars were run loaded with troops, who rapidly transferred their camp equipage and travel rations to the ships, which then slowly pulled into the larger waters of the bay.

In all there were some 27 transports into which the troops were packed, in lots varying from 700 to 1,300 each. The ships had stands of rough lumber bunks, usually three tiers high, sometimes four, built into the holds and lower and main decks. The packing of these bunks was so close that there was hardly room to pass between them, while in too many instances, with the closure of the hatches, light and air would have been wholly excluded and suffocation quickly result. The transports were originally built for freight and cabin passenger service, and no one of them was properly adapted to the carriage of troops.

Complaints of overcrowding were so numerous and so serious that the commanding general appointed a board of officers, consisting of Brigadier-General Lawton, the chief surgeon, and Captain Mendoza, to inspect the vessels and report which had the greatest number of troops, and how, by redistribution of the men, the trouble might be corrected. And he at once ordered back some 900 recruits that were to have joined their commands on the transports.

The inspection of the board showed that on the *Cherokee*, transport No. 4, there were 40 officers and 972 men, total 1,012, part Seventh Infantry and part Twelfth Infantry. On the lower deck there were 345 men; bunks in three tiers, closely packed; no ventilation or light when the ports were closed. No wind sails for the lower decks. On the main deck there were about 430 bunks and men, two 15-inch openings for ventilators when the main hatch was closed. No wind sail for this deck. On the upper deck 200 men, without protection, and who in case of storm would have to be crowded below. Only two water-closets accommodating 5 men each for the whole outfit. There was about 8,000 gallons of water on hand. No condenser. There was about 9 days' supply in the casks, and in tanks about 4,000 gallons. The board recommended that 200 men be taken from the ship, that water-closet accommodations be increased, and wind sails supplied.

Steamer *Concho*, transport No. 14. Commands, Fourth Infantry, Twenty-fifth Infantry, Third Battalion Second Massachusetts Volunteers, 71 officers and 1,256 men, total 1,327. In the lowest deck, where it was so dark that one could not see 10 feet from the main hatch, it was intended to pack nearly 800 men, the Twenty-fifth Infantry and Second Massachusetts Volunteers. The bunks were in four tiers and crowded so closely that men could hardly pass between them. Ventila-

tion by open hatches and open ports. If these were closed, ventilation would be impossible, as there were no other openings. On the second deck was the Fourth Infantry, 460 men. On the upper deck where the men stayed most of the time there were no bunks or shelter. Of 71 officers crowded into the cabins three were medical officers; Maj. William Stevenson, surgeon United States Volunteers (who was relieved before the ship sailed),* Maj. Paul R. Shillock, surgeon United States Volunteers, of the Twenty-fifth, and Hitchcock of the Second Massachusetts Volunteers. Only one water-closet on board for use of the troops. This was a trough accommodating 10 men only. Additional closets recommended and that the volunteer troops be taken off, which relieved the ship of 13 officers and 306 men. The water capacity was reported at 40,000 gallons, of which 30,000 was on hand. The water was brought from St. Petersburg, Fla., 3,000 gallons per day being used.

Steamer *Leona*, transport No. 21. Command, General Young's Cavalry headquarters, First and Tenth Cavalry, 57 officers, 1,026 enlisted men. The total bunkage said to be 1,046, which I very much doubted. On the lower deck were 230 men, main deck 496, and it was reported that nearly 300 men slept on the upper deck. The ventilation was by deadlights, open port, and open hatches. There were two wind sails, six water-closets. Health of the men excellent. Water storage capacity, 50,000 gallons, but it was not all on hand. No condenser on board. The board found the transport overcrowded by 230 men.

Steamer *Saratoga*, transport No. 20. Command, Thirteenth Infantry and one battalion Twenty-first Infantry, also division hospital No. 3, under Major La Garde, surgeon. Ship carrying 46 officers and 705 enlisted men. The bunks were three-tier, for 2 or 3 men each. On the lowest deck there were no bunks or men. On the main deck, bunks for 568 men. On the upper deck about one-fifth of the men were camped, as there was no room below. The water capacity was about 10,000 gallons; a condenser was on the ship for use if necessary. Ventilation was very bad. As the ship was a freight steamer only, there were no deadlights and but two wind sails where there should have been four. The ends of the main deck were dead spaces into which no air could be forced. The battalion of the Twenty-first Infantry was recommended to be taken off (235 men). There were 10 cases of fever on board and 2 of supposed measles. (These were removed to the *Olivette*.) Water-closets, 3; ample for command.

Steamer *Orizaba*, transport No. 24. Command, Twenty-second Infantry, Siege Artillery, 2 companies heavy artillery, 1 battalion Second Massachusetts Volunteers and 125 mules. Total, 43 officers and 927 men. Lower decks, 300 bunks and no men. Main deck, 300 bunks for 500 men. Upper decks, no bunks, 400 men. Water supply, 39,000 gallons. No condenser. Ventilation limited to one wind sail and open ports, all of which must be closed in bad weather. Board recommended battalion, Second Massachusetts Volunteers, to be removed—300 men.

Steamer *Miami*, transport No. 1. Command, Ninth Cavalry and Sixth Infantry, Officers, 63; enlisted men, 902. On the lower deck were no bunks. On the main deck 750, in which were accommodated 652 men. On the upper deck no bunks. There were 250 men camped out. The ventilation of the main deck was bad, the hold being a tight box without deadlights. There were two wind sails. Water-closets, 2—not sufficient. Increase recommended.

Several other transports were inspected by the board, in which the conditions appeared to be very satisfactory. The changes recommended were made so far as time would permit.

Water on transports.—The water on the transports, which was stated to have been largely drawn from New York, in many cases had a fetid odor of decomposition, apparently due to the foulness of the tanks. This pertained likewise to ships that had St. Petersburg water furnished them through the water steamer *Olivette*. St. Petersburg was a small town across the bay, whose water supply appeared to have been exceptionally good. It was conveyed by pipe line to the wharf and pumped into the *Olivette's* tanks for distribution. The tanks on this steamer being clean, the water was always good. That ship casks should get foul is no wonder, as they were usually in such position as to gather dirt whenever opened, the opening being a square hole 6 by 8 inches covered with a piece of canvas, which was as often off as on.

The hospital steamer Olivette.—As the embarkation took place and reports of sickness on the transports came in, it became quite evident that a hospital steamer must be secured with the least possible delay. Under direction of the commanding general I examined several boats with view to selection, but none of them presented more desirable qualities than the steamer *Olivette*, which was doing service

* First Lieut. James Stafford, Seventy-first New York Volunteer Infantry, assigned to Fourth Infantry just as transport sailed.

as a water carrier and distributor for all the transports of the fleet. She had large stateroom accommodation both on the upper and lower deck, a large-sized dining saloon, which was later used as a place for surgical work; she carried plenty of ice and water, and was without cargo except some horses, I believe, and forage for the same, which was cleaned out later.

The transfer of Major Appel's hospital from the *Comal* was quickly effected, and he at once proceeded to gather up the sick from the various transports, signals being hoisted every morning when his services were needed. These were from time to time transferred to a small hospital on shore in the artillery camp, with a view to their early transportation to the north. The removal of the sick from transports was often a slow and difficult process, particularly in rough water; for they first must be lowered into a small boat, which was at one time lifted on the crest of a rising wave and the next plunged into the gulf of a sinking one, and then pulled to the side of the hospital ship, where the same dangerous process was to be repeated in getting them on board. But the work was continued, and happily without accident, until the fleet was cleared of its most serious cases.

On the afternoon of June 13 and the morning of the 14th the fleet of twenty-eight transports and other craft sailed out from Tampa Bay with crowded decks and rigging, and bands playing. The weather was delightful and the sea as smooth as glass. Indeed, fair weather accompanied us the whole voyage, which occupied some eight days. Hatches and ports could be kept wide open, and the men lived virtually in the open air. Had it been otherwise, their suffering from sea sickness and the foul air of the unventilated holds would have been intolerable.

After the departure of the fleet the *Olivette* steamed to the dock to take on coal for the voyage. An opportunity was given to unload the ship of some cases of measles and light cases of fever. This was a fortunate circumstance, as it placed the steamer in condition to relieve the transports of their sick on arrival at Daiquiri, many of whom were later transferred to the steamer *Iroquois*, so that room was made for the wounded of the impending battle on the 24th of June at Guasimas and the 1st and 2d of July at San Juan Hill and before the intrenchments of Santiago de Cuba.

The landing of the Fifth Army Corps on the 22d of June at Daiquiri was accomplished in a brilliant manner. The escapes from death by drowning were many. That there were only two casualties of this nature is really remarkable, all of the circumstances being considered. As is well known, the troops went on shore with only such rations, shelter tents, and cooking apparatus as they were able to carry on their persons. The same is true of all medical officers and men of the Hospital Corps assigned to duty with the several organizations. This prevented the transportation of any medical supplies beyond what could be carried in the hands.

Of litters there was by no means a sufficient number, as many of the regiments had neglected to bring them from their several stations. This was a deficiency which we keenly felt later upon the field of battle, and which could not be rectified by the Medical Department. Where there should have been 10 litters to each regiment there were often but 2, and sometimes none.

First-aid packets.—Prior to embarkation there were received at the medical supply depot in Tampa about 12,000 first-aid packets, which, under direction of the chief surgeon, were issued to the several brigade surgeons with a view to their subsequent distribution to the troops while on transport, it being considered that if placed at once in the hands of the soldiers they would often be lost or thrown away, as they subsequently were on the march through the tropical jungle extending from Siboney to San Juan Hill.

These first-aid packets were liberally used in dressing the wounds received in battle, and the skill and care with which they were found to have been applied on receipt of the wounded at our field hospitals attest the courage and devotion of our medical staff.

Medical supplies.—Medical and surgical chests with which the regular regiments were in nearly every instance provided were in the hurry of departure unfortunately left on the transports, together with all extra medical supplies. A few medical officers took their chests with them only to abandon them within the first mile of march, leaving them to be afterwards picked up by passing wagons or ambulances. After the departure of the troops came the unloading of the pack animals, the subsistence stores, and the ammunition. It was a tedious and dangerous work that could only be done in the early morning hours, before the wind sprang up, by the small boats and later by the single steam lighter, the *Laura*, because of the rocky nature of the coast even in the harbors, the abrupt plunge of the beach into deep water, and the inadequate docking facilities at both Daiquiri and Siboney. Then, too, the masters of tri- "them out to sea after debarkation of the

command, for many hours and even for days, because of their fears of wreck by collision with each other or by drifting upon the rocks. With all these difficulties in getting out the absolute necessities for life and military security for the troops, it can well be appreciated that little opportunity was given to unload tents and medical chests. Constant efforts were made by the chief surgeon to recover them, but with very meager results. He was more than grateful when he succeeded in getting the field hospitals on shore, as will be described later.

The absence of the medical chests was a great blow to regimental medical officers and a matter of keenest anxiety to the chief surgeon, particularly after the troops had dug the trenches and the sick lists were increasing rapidly by the appearance of malaria and thermic fevers and by diarrheas and dysenteries.

Reserve medicines, hospital delicacies, etc.—Three days prior to the order of embarkation, which was given on the night of June 8, I directed Capt. C. M. Gandy, assistant surgeon, the acting medical supply officer at Tampa, Fla., to set aside one-half of all the medicines and surgical supplies remaining in the storehouses to be taken as a reserve upon the headquarters ship the *Seguranca* under my own charge. At the time the order was given supplies were beginning to be unloaded from the trains by the quartermaster's department and issues were made to regimental surgeons, of both volunteer and regular organizations, of such articles as were needed. The reserve was not large, and was gotten out of the storehouse by myself and two hospital-corps men at midnight of the 8th and put upon the train which left for Port Tampa at 2.30 a. m. of the 9th. There were two wagon loads taken that night, and Captain Gandy sent two more on the following morning. Among this lot of medicines there was fortunately a large amount of quinine—2 barrels in all—and other material, and three sets of surgical chests and sterilizers. The medicines received on the morning of the 9th were ultimately placed on the steamer *Olivette*, where they were much needed.

My reason for taking only one-half the amount of supplies in the storehouses was that volunteer regiments were continually arriving at Tampa, and I felt certain that they would need everything that I could spare, as these troops were usually destitute of everything.

This lot of medicines was landed from the *Seguranca* at Siboney about June 27 and placed in charge of Maj. Ogden Rafferty, surgeon, United States Volunteers, with orders to act as medical-supply officer and issue the same. As the headquarters of the Fifth Army Corps was moved to the front on the 28th, the chief surgeon left instructions to Major Rafferty to use every effort to get the medical supplies known to be on transports and either ship them to the front as opportunity occurred or turn them into the hospital at Siboney, from which point our supplies were drawn up to July 28.

Although no report was made to me of the results of these efforts, I do know that medicines (in small quantities, to be sure) were brought up by returning ambulances and distributed to the chief surgeons of divisions. But there was never enough to satisfy the demands, even after the arrival of the hospital steamer *Relief*, which was reported to the chief surgeon to have on board 700 tons of medical supplies. What these supplies consisted of I do not know, as I was continually at the front, but I do know that the medicines required by us and the hospital delicacies brought by her were reported to me as practically exhausted by the 22d of July.

As the chief surgeon of the corps had been twice informed by the Surgeon-General that the *Relief* was not only loaded with everything that we should need, but would join the expedition at an early date, it can be imagined with what anxiety he awaited her arrival and what disappointment he suffered when he learned that her supplies were being exhausted at so early a date.

NOTE.—The arrival of the *Relief* was reported to the chief surgeon by telephone about July 8 by Major Torney, the officer in charge. Later, Colonel Greenleaf, who arrived on the *Yale*, telephoned they would have to be unloaded before the exact nature of her supplies could be ascertained, as no packer's list was on hand and the boxes were without content marks. Further, he requested the chief surgeon to send to Siboney a steward and some hospital-corps men to assist in the work of unpacking and sorting contents of boxes, which request was complied with as soon as possible, the men being detailed from volunteer regiments. Later, Acting Asst. Surg. W. E. Parker, United States Army, was placed in charge of the stores and attended to their issue. His report in this connection would be of interest.

Memorandum of events from June 22 to 28.—On the 22d of June the landing took place at Daiquiri, the naval steam launches and boats conveying the troops to the shore.

On the 23d the Navy furnished a few launches and some boats to convey the remainder of the troops on shore at Siboney, also some rations and ammunition,

but nearly all were withdrawn in the afternoon, as the heavy surf prevented any further landing.

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Yellow fever.—During the second week in July Dr. John Guiteras, acting assistant surgeon, United States Army, who had been left at Siboney with view to special work in connection with yellow fever, reported having discovered five cases of that disease. Three of the patients were newspaper correspondents; others from the Thirty-fourth Michigan Volunteer Infantry. Later, daily reports showed a steady and rapid increase of the disease, local unsanitary conditions favoring its spread. The fact that most of the patients had been sleeping in or resorting to habitations which were considered infected was reported. Upon this the commanding general directed the destruction by fire of all the buildings at that point.

On the arrival of the steamer *Yale*, Col. Charles R. Greenleaf, assistant surgeon-general, took charge at Siboney, and commenced a vigorous police of the town and the exclusion of all Cuban and Spanish refugees. Col. Nicholas Senn, chief surgeon, United States Volunteers, had before this assisted in the work of purification, and Major Gorgas, surgeon, United States Army, was detailed in charge of the yellow-fever hospital, and Major McCreery, surgeon, in administrative charge of the town.

A few days later, as cases were reported among the sick received from the front at the detention camp near corps headquarters, Acting Asst. Surg. Hamilton R. Jones was directed to make an inspection of all sick arriving and separate the yellow fever cases. A hospital for these was established three-quarters of a mile distant on an eligible site. Dr. Jones was placed in charge of this hospital with Acting Asst. Surg. J. F. Combe as his assistant. Cuban nurses were employed at first, but they proved to be worthless, and were either discharged or left in a short while. As was always the case, the lack of shelter was a serious evil, which was corrected very slowly and only as tents could be spared from Siboney and the surgical hospital under Major Wood. Up to July 23, 125 cases were received in this hospital and a mortality rate reported of about 13 per cent.

At Siboney cases continued to accumulate until over 400 were reported, the death rate being slightly higher than the above.

NOTE.—Very shortly after the debarkation of troops at Siboney the chief surgeon of the corps called upon the commander of the Cuban forces, who with his staff was quartered in the most desirable house in the place, and asked him in regard to the existence of yellow fever in or near the village. He stated in excellent English that there had been no case in the place recently. When questioned as to possible danger in occupying dwellings there or coming in contact with his people, he said he believed there would be no danger, as the Cubans rarely had yellow fever. When asked as to the advisability of burning the village to destroy infected houses, he replied that he did not think it necessary and that it might seem like wanton destruction of property.

Under the influence of this opinion neither the chief surgeon nor the commanding general thought it advisable to burn the town at that time, but orders were given that the troops should keep out of the houses and palmetto shacks. This order was not observed by civilians, nor by the commander of certain volunteer regiments and their staffs, the result being that they discovered the infective points very promptly and were attacked by the disease. After this had happened the town was destroyed, as stated.

Dr. Jones, who was ordered to inspect the fever cases under treatment in the lines, reported many mild cases and several serious ones, all of which were removed as quickly as possible to the hospital, the presence of albumen in the urine being apparently the main diagnostic point. Unfortunately regimental surgeons were without their urinary test sets, and nitric acid and test tubes were very scarce at all the hospitals. For this reason many cases that were thought to be simple ephemeral or thermic fever and various forms of malarial manifestation, which were widespread among the troops and complicated every disease, were really mild and undetected cases of yellow fever. The uncertainty of diagnosis was increased by the practical absence of yellow fever among the refugees or in the city, as reported by Dr. Hartmann, of Santiago, who had been a lifelong resident and practitioner, and who was one of the 22,000 refugees at Caney. Then numerous regiments which had suffered no contact with refugees, were isolated in fact, furnished cases of the disease. All of the regiments had one common condition, however, that of the construction of heavy lines of intrenchments and the necessity of living in or near this upturned soil for nearly two weeks. As I believe this was one of the principal causes of widespread malarial infection, so do I believe that it was the main cause of yellow fever infection. That this telluric variety of yellow fever was mild in type gave a reasonable hope that by the prompt recognition and separation of cases and the removal of camps the disease might be controlled before the virulence of the ir as increased by transmission through the human body.

Removal of camps, etc.—So soon as the military situation permitted, the commanding general directed the removal of all camps from the trenches, and the selection of elevated and well-drained sites on the hills to the north and east of the city. One camp, that of the First Infantry, was located near San Luis, for military reasons. The mountain range was avoided because of the lack of roads over which supplies could be drawn and the lack of water; also because of the marked increase of rainfall in that region, storms being much more frequent there than near the city. The camps varied in distance from Santiago. The nearest and the healthiest, that of corps headquarters, was 1 mile from the edge of town, on the ridge about 100 feet high. The farthest, that of the cavalry division, about 4 miles, under the foothills to the north. The mountain plateau country was unsuitable for camping purposes, because of the lack of shade and the deep black muck of soil, which was a perpetual quagmire during the rainy season. The men and officers of the First Infantry suffered intensely in that country from the moist heat of the day and the drenching by storms.

Tentage, etc.—It was not until the last week in July and the first week of August that regimental tents and camp equipage began to be unloaded from the transports and were carried to the camps, and up to the time of reembarkation many of the regiments were still protected only by their shelter halves. Where the material could be procured some of the troops made themselves bunks, elevated from the ground, but ordinarily this was not done, the material not being at hand, and the energy of the men exhausted by sickness and the tropical climate. Where the tents and the bunks were combined the greater comfort possibly revived the waning health of the men. But this was not apparent at once.

Among the camp equipage were to be classed the kettles for boiling water and the ovens for cooking and baking, all of which were necessary to establish the company messes and better methods of preparing the food supply. At the same time canned tomatoes and other vegetables began to appear and fears of scorbutic complications to wane; but with it all the intense infection of trench fever continued its work until over 4,000 men and officers were on sick report. It became thus evident that the solution of the problem lay only in the immediate removal of the whole command to the United States, which was commenced August 8, and continued under regulations established by the War Department as rapidly as transports were furnished until the 25th of August.

Use of transports for the sick and wounded.—Very early after the battle of Sevilla, and from that time on, the use of transports for the accommodation of slight cases of wounding and for the sick and convalescent became absolutely necessary, in the absence of regular hospital ships and the congestion of the hospitals with numbers of patients for whom necessary shelter could not be provided on shore, because of the lack of tents and the lack of cots. At the front and in the trenches hundreds of men were waiting for hospital treatment, which could not be given them until room was made, and room could only be made by shipping north those able to travel. For this reason the chief surgeon recommended the use of transports, and they were used with evident satisfaction up to the *Seneca* and *Concho* incidents, when there seems to have been complaint as to the alleged foul water on the ships and the lack of supplies for the sick. In regard to the first condition, these transports were wholly under control of the quartermaster's department in all matters pertaining to the ship itself, and foul-smelling water from long storage was a condition common to nearly all of them.

About the 20th of July Major La Garde, surgeon in charge of the hospital at Siboney, was asked by the chief surgeon, through telephone, how many more patients he could accommodate. He replied that his hospital was full, but that he had 175 convalescents, who, while unable to be returned to duty, were able to travel. In order to make room for many grave cases of sickness reported in camps, I requested that a transport be designated to take these convalescents to the States, and thus vacate beds and shelter for graver cases. The commanding general authorized the transfer and the chief quartermaster designated the vessels named. The conditions were urgent and because of the lack of tents the hospitals could not be enlarged, so as many convalescents as possible were sent north. The selection of those to go and the provision of medical stores was in the hands of the surgeon in charge of medical administration at Siboney. The foulness of the ships was a matter to be remedied by the captain and crew, and with the powerful pumps on hand I was assured no difficulty could be met in making a ship clean at any time during the voyage.

The lack of surgeons and nurses on these vessels was probably unavoidable, the lack because of sickness and other causes being one that pertained to all the hospitals of the corps at that time and to many regimental organizations also. Furthermore, the convalescents were supposed to be practically well men, and at least able to care for themselves, except during such illness as might break out during

the voyage, and for this contingency reasonable provision had been made by the presence of two medical officers and some most necessary medical stores. If any serious cases of illness or wounds were sent on these ships it was without direction from the chief surgeon.

Fight at Sevilla or Guasimas.—The engagement occurring on the 24th of June at a locality known as Sevilla or Guasimas, about 4 miles from Siboney, furnished 52 wounded men, who were slowly brought on litters to the shore, where they were temporarily rested in a very foul old shed until boats and launches could be procured from the Navy to transport them to the steamer *Olivette*. In handling the wounded much skill was shown by the sailor and hospital corps private, as well as a good deal of courage, in carrying the boat through the surf and alongside the steamer, where they were unloaded near an open port hole, and the patients carried thence onto the main deck to await their several turns at the operating table.

The chief surgeon spent the night on this steamer and can not too highly commend the effective administration of its affairs by Maj. A. H. Appel, surgeon in charge. The ship was well adapted to hospital work, and the surgical outfit made easily available. The large dining room, which was lighted by electricity, was rapidly converted into an operating room, the mess tables and chairs being moved away, and surgical tables, sterilizers, and dressing cases substituted.

The staterooms of the *Olivette* were largely above the main deck and well ventilated, although the use of staterooms rendered the task of nursing and surgical dressing more difficult than where open and clear decks could be fitted up. Bathrooms were extemporized, and the mess and nursing appliances of the field hospital were easily sterilized. A large stateroom was used as a dispensary, and the smoking room on the upper deck as an office.

This early battle gave the first illustration in actual warfare of the value of the first-aid dressings. All of the wounded showed most careful application of the dressing, which in many cases might have been left undisturbed could the exact nature of the surgical condition have been known without their removal. The nature of the surgery was conservative, no occasion for the graver operations appearing. One case of trephining for wound of the head was made by Lieut. L. P. Smith, assistant surgeon, United States Army, and a laminectomy for shot wound of the lumbar vertebrae by Major Appel.

Battles.—The action of July 1, 2, and 3 have been so fully written up in military reports that a further description would be unnecessary. The operations of the medical department have received no description that has come to my notice that does justice to the gallantry of the medical staff on the field or its skillful and tireless work in the hospitals. The bravery of our men under fire was conspicuous. They shared all the dangers and sufferings of the campaign equally with the officers of the line.

In Major Wood's hospital over 1,000 wounded men were received within three days, and in spite of lack of shelter and the subsequent exposure to intense heat and drenching rains, the mortality rate was less than 7 per cent.

All of the wounded showed the most careful primary dressing, which permitted deliberate work in the hospitals in the application of operation and secondary dressings. Fractures of the thigh were carefully splinted on the field, sometimes with rods or wire, at others with the broad bark of the palm tree, which when wet was pliable and when dry firmly adherent, and it could be cut into any desired shape with a knife or rolled into desired forms with great ease.

The transportation of the wounded from the field of battle, 8 miles distant, was mainly by litter and three ambulances. In a few cases an extemporized carriage was tried, but not often with success. The wounded from the fight at El Caney were cared for at that place by Major Ebert, surgeon with the Seventeenth Infantry. They were brought in later by means of ambulances and wagons. There were at this place over 150 wounded Spanish prisoners, who were cared for by Major Ebert and later by Drs. Goodfellow, Marshall, and Menocal, until they were transferred through the lines to the large Spanish hospital in the city.

Early after the battle the hospital was honored by the presence of Miss Clara Barton and her staff of four assistants, who immediately set up their tents and cooking apparatus, and labored incessantly day and night, in the broiling sun and drenching rain, preparing sick food for the wounded and serving it to them, and in a thousand other ways giving the help that the Red Cross Society brings.

At the earliest practicable date the wounded were moved to Siboney, commencing with the slightest injuries, and proceeding day by day until about the 17th of July, when the hospital was empty and ready to be moved further to the front. This was done by Major Wood, a site being selected on a hill near the road running north and not far from Cubitas, a collection of houses on Purgatorio Creek.

Health of the troops.—The health of the troops while at Tampa was excellent as a whole, the number of those excused from duty being considerably less than the rate of peace service at military posts. But this low rate did not include the large number who were suffering from an acclimating diarrhea, which broke out in the regiments newly arrived. This disorder, which was widespread and annoying, resulted in using up a large amount of medicines without materially impairing the effectiveness of the command. The reasons for its incurrence, I think, may be found not in any defect of water supply, which would have affected citizens as well as soldiers, nor yet in the food, which among the regular troops did not materially differ from that to which they were accustomed, but I believe it was due rather to change of habitation from warm, dry bedding in warm, dry barracks to the damp chills of sleeping on the ground, often with no other bed than a thin rubber sheet. Every night our clothing was drenched with dew, and every day it was drenched with sweat, and from this alternate heat and chill I believe the intestinal catarrhs and colics arose. When we became accustomed to the change, our troubles in that respect ceased. Another cause was the innumerable so-called soda water and "pop stands" that peddled their indigestible stuff on the outskirts of the camps, and with which the unwary and imprudent soldier was always gorging himself, not because his food was insufficient, but because of his childlike hunger for sweet stuff of any nature.

About the same time measles appeared among the troops, affecting regulars as well as volunteers, and old men as well as young. The disease, which had been unusually prevalent all over the North during the winter preceding, spread rapidly in the camps. Prompt isolation of the patients by removal from their commands to the field hospitals seemed to hold it in check, so that in the history of the expedition it did not become a very important factor. The type was not severe, and the mortality rate was small.

Typhoid fever appeared early and increased with rapidity as the season advanced. Just why it should have become so widespread I can not now conjecture. While we naturally look to an infected water supply as the universal cause, I think we must admit the possibility of infection of both food and water through showers of infected dust and swarming of infected flies who travel from the sinks to the mess tents with intolerable regularity. In too many cases the covering of sinks was perfunctory—usually done at reveille and in the afternoon—but its contents left bare during the middle of the day when most in use.

The infection of water barrels by dust being blown into them was easy, and the inhalation and swallowing of infected dust was by no means impossible.

The typhoid fever existing in Tampa prior to embarkation of the troops was of a grave type, but fortunately the mortality was not large. Later, in Cuba, after the strength and vitality of the men became lowered by the exposures and hardships of war, the mortality rate increased and the disease took its place among the foremost causes of disability. Malarial fevers and a variety of ephemeral fever, which simulated dengue, appeared in Cuba. The diseases were widespread and of a severe type. In all of them great prostration would follow apparent recovery, and convalescence was protracted. Large doses of quinine were required to control the malarial variety. The ephemeral fever, which exhibited a temperature often as high as 105° and 106° F., would disappear in about four days, with protracted convalescence and a tendency to recurrence. Quinine was used in large doses, but without checking the disease.

In Cuba many of these ephemeral forms were later diagnosed as yellow fever, particularly when they were subjected to urinary test; but without that the Tampa and Cuban varieties looked much alike.

During the latter part of July and August the tendency to diarrhea and dysentery became pronounced, although the diet of the troops had much improved and the water supply was certainly no worse than it had been from the first. The majority of medical officers regarded it as of malarial origin and treated it as such, and frequently with large rectal injections of quinine. Attempts were made to check its spread by recommending the use of boiled water for drinking purposes without favorable results, probably because the men preferred the disease to the remedy. At divisional hospital No. 1, where boiled and filtered water was freely supplied, and about all that was to be had, the incurrence of diarrhea and dysentery was almost unknown. Among the regiments the excuse for not furnishing boiled water was valid; the commands were, until very late, without the necessary kettles and cauldrons to heat the water. When the soldier had only his tin cup and ration can and a little fire of green twigs with which to cook his food, boiled water was omitted.

Sanitary advice.—Before leaving Tampa the chief surgeon secured the publication of General Orders, No. 8, headquarters Fifth Army Corps, June 2, 1898, in

relation to the sanitary care of troops. This circular was prepared by Dr. John Guiteras, acting assistant surgeon, United States Army, as was also a small card circular intended as a pocket companion. Copies of these are hereto appended.

Medical staff.—A pocket register of the medical officers, regular, volunteer, and contract, was kept by the chief surgeon, from which the following information can be given, and in the absence of verification by comparison with the larger desk records turned over to Lieutenant-Colonel Havard, chief surgeon, United States Volunteers, it is believed may be said to be fairly correct.

On the 22d of June there were on duty with the Fifth Army Corps 36 regular medical officers, 15 volunteer medical officers and 20 contract surgeons, total 71, to supply 20 regiments of infantry, 5 regiments of cavalry, 2 squadrons of mounted troops, 3 batteries of light artillery, 1 battalion siege artillery, 1 engineer battalion, 3 field hospitals, a large wagon train, 1 hospital ship, the pack train, the Gatling-gun detachment, signal-corps detachment, and 2 independent stations; in all, 87 military organizations and 2 quartermaster stations—Daquiri and Siboney, and 4 hospitals.

It is my opinion that the number of medical officers was insufficient to meet the demands of service in Cuba. There should have been to every regiment at least 2 medical officers, or 50 to start with. To every squadron of cavalry, battery of artillery, and battalion of engineers, gun detachment, squad corps, pack train, 1 or 2 assistants. To every hospital, 4 as regular staff and 4 contracts as assistants, or 32; making a total of 90 officers.

Concerning the medical officers and men of the hospital corps who were with the expedition, I can not speak too highly. They shared all the hardships that came to the Fifth Army Corps, not alone during the assault and siege of Santiago de Cuba, but in the far more trying battle with disease, which day after day ravaged our camps and threatened annihilation as a fighting force to the gallant troops who had won one of the most splendid victories of history. These brave and devoted men, through the blistering heat and drenching rains and equally drenching dews of a tropical summer, marched side by side with their comrades of the line, slept in the mud, breathed the deadly vapors of the jungles, and more pestilential miasmas of the upturned earth in the trenches, endured the same privations as to lack of food and shelter, worked when others slept, resting neither day nor night so long as their services were anywhere called for, whether on the march, in the camps, or in the hospitals. Can we deny to them equal share in the honors that may be bestowed upon their fellow soldiers? I can at least append their names, in the hope that they may not be forgotten. There are also others, who joined the command later and did faithful and valuable service, whom I hope will be embraced in a supplementary list.

This report closes with July 23, 1898, when, on account of continued illness and at my own request, I was relieved by the commanding general from duty as chief surgeon of the corps and Maj. Valery Havard, surgeon, was appointed acting chief surgeon in my stead, the administrative duties of the office being assumed by him. His report will cover the operations of the department from that date.

DOCUMENTS ATTACHED TO LIEUTENANT-COLONEL POPE'S REPORT.

1. *List of regular and volunteer medical officers and acting assistant surgeons on duty with the Fifth Army Corps at the date of the landing of the expedition at Daquiri and Siboney, Cuba.*

Lieut. Col. B. F. Pope, chief surgeon, United States Volunteers; chief surgeon, Fifth Army Corps, April 23 to July 23, 1898, when relieved on account of illness. Remained with the corps, however, until it returned to the United States.

Lieut. Col. Valery Havard, chief surgeon, United States Volunteers; chief surgeon, Fifth Army Corps, from July 23, 1898, to August 25, 1898, when he was announced as chief surgeon of the Department of Santiago; chief surgeon of the cavalry division to July 23, 1898.

Maj. Henry S. Kilbourne, surgeon, United States Army; chief surgeon, Second Division. Later, September 10, 1898, chief surgeon, Fifth Army Corps.

Maj. M. W. Wood, surgeon, United States Army; chief surgeon, First Division; also in charge divisional hospital No. 1 to July 21, 1898.

Maj. L. W. Crampton, surgeon, United States Army, Eighth United States Infantry; in charge detention hospital near corps headquarters; chief surgeon, First Brigade, Second Division.

Maj. S. Q. Robinson, surgeon, United States Army, Tenth United States Infantry; chief surgeon, Second Brigade, and acting chief surgeon of the Second Division. Later, in charge of divisional hospital No. 1. Left at Santiago de Cuba on departure of the Fifth Army Corps for the United States.

Maj. L. A. La Garde, surgeon, United States Army, Ninth United States Cav-

alry; in charge of divisional hospital No. 8, at Port Tampa, Fla., and Siboney, Cuba; also in charge of all administrative work at that place.

Maj. A. H. Appel, surgeon, United States Army; in charge of divisional hospital No. 2, at Tampa, Fla.; also of same hospital on steamer *Olivette*.

Maj. George McCreery, surgeon, United States Army, Sixth United States Cavalry; in charge of field hospital, cavalry division; executive officer at Siboney during the yellow-fever epidemic. Died at sea en route to the United States.

Maj. R. G. Ebert, surgeon, United States Army, Seventeenth United States Infantry, chief surgeon, Second Brigade, Second Division; also in charge of wounded Spanish prisoners at El Caney, Cuba.

Maj. R. W. Johnson, brigade surgeon, United States Volunteers. Executive officer and surgeon, divisional hospital, No. 1. Left at Santiago de Cuba after the departure of the Fifth Corps for the United States.

Maj. W. D. McCaw, brigade surgeon, United States Volunteers, Sixth United States Infantry; chief surgeon First Brigade, First Division.

Maj. F. J. Ives, brigade surgeon, United States Volunteers, Twentieth United States Infantry; chief surgeon General Bates's Independent Division.

Maj. H. S. T. Harris, brigade surgeon, United States Volunteers, Ninth United States Cavalry; later chief surgeon Cavalry Division.

Maj. W. B. Banister, brigade surgeon, United States Volunteers, Second United States Infantry. In charge field hospital near General Bates's Division. Left at Santiago after departure of the Fifty Army Corps.

Maj. Paul Shillock, brigade surgeon, United States Volunteers, Twenty-fifth United States Infantry; chief surgeon, Second Brigade, Second Division.

Maj. W. C. Gorgas, brigade surgeon, United States Volunteers.

Maj. Ogden Rafferty, brigade surgeon, United States Volunteers. On duty at Siboney, Cuba, as acting medical supply officer. Returned to the United States in charge of sick, transport *Cherokee*, July 6, 1898.

Maj. Philip G. Wales, brigade surgeon, United States Volunteers, Twelfth United States Infantry.

Capt. A. B. Heyl, assistant surgeon, United States Army, First United States Cavalry. Returned to the United States about July 9, 1898.

Capt. Joseph T. Clarke, assistant surgeon, United States Army, Twenty-second United States Infantry.

Capt. M. W. Ireland, assistant surgeon, United States Army; surgeon at divisional hospital, No. 3 at Port Tampa, Fla., and Siboney, Cuba.

Capt. H. C. Fisher, assistant surgeon, United States Army, Twenty-first United States Infantry.

Capt. F. A. Winter, assistant surgeon, United States Army, Third United States Cavalry. Returned to the United States on transport *City of Washington*, July 9, 1898.

Capt. M. M. Brewer, assistant surgeon, United States Army, Tenth United States Cavalry. Died of typhoid fever on his return to the United States.

Capt. H. M. Hallock, assistant surgeon, United States Army, Seventh United States Infantry.

Capt. G. J. Newgarden, assistant surgeon, United States Army, Third United States Cavalry.

Capt. E. L. Munson, assistant surgeon, United States Army, executive officer to chief surgeon, Fifth Army Corps, on steamer *Olivette*, June 24 to 26; in charge of outfitting transports for reception of wounded to July 10; left for the United States on the *Breakwater* July 10, in charge of sick and wounded.

First Lieut. Guy C. M. Godfrey, assistant surgeon, United States Army.

First Lieut. J. M. Kennedy, assistant surgeon, United States Army; commanding ambulance train, Fifth Army Corps; in charge of distribution of supplies and the transportation of wounded and sick from July 20 to August —, 1898; in charge of the Nautical Club Hospital at Santiago de Cuba to —.

First Lieut. W. W. Quinton, assistant surgeon, United States Army, Battery A, Second Artillery.

First Lieut. D. C. Howard, assistant surgeon, United States Army. On duty at divisional hospital, No. 2, and on steamer *Olivette* to —.

First Lieut. W. H. Wilson, assistant surgeon, United States Army, Battery K, First Artillery.

First Lieut. T. J. Kirkpatrick, assistant surgeon, United States Army, Twenty-fourth United States Infantry.

First Lieut. J. H. Stone, assistant surgeon, United States Army, Sixteenth United States Infantry.

First Lieut. P. C. Fauntleroy, assistant surgeon, United States Army, Fourth United States Infantry, and divisional hospital, No. 3, at Siboney.

First Lieut. L. A. Fuller, assistant surgeon, United States Army, Tenth United States Cavalry.

First Lieut. L. P. Smith, assistant surgeon, United States Army, divisional hospital, No. 2, and on hospital steamer *Olivette*.

The following are State volunteer officers:

Maj. W. D. Bell, surgeon, Seventy-first New York Infantry Volunteers.

Capt. H. E. Stafford, assistant surgeon, Seventy-first New York Infantry Volunteers.

First Lieut. James Stafford, assistant surgeon, Seventy-first New York Infantry Volunteers.

Maj. H. C. Bowen, surgeon, Second Massachusetts Infantry Volunteers.

E. A. Gates, assistant surgeon, Second Massachusetts Infantry Volunteers; also on duty at divisional hospital, No. 1.

J. S. Hitchcock, assistant surgeon, Second Massachusetts Infantry Volunteers.

Maj. Henry La Mott, surgeon, First United States Volunteer Cavalry.

Capt. J. A. Church, assistant surgeon, First United States Volunteer Cavalry.

Lieut. Frank Donaldson, assistant surgeon, First United States Volunteer Cavalry.

Maj. F. T. L. Magourn, surgeon volunteers, Ninth Massachusetts Infantry.

First Lieut. Peter Shea, assistant surgeon volunteers, Ninth Massachusetts Infantry.

Maj. V. C. Vaughan, surgeon, Thirty-third Michigan Infantry.

Guy B. Bailly, assistant surgeon, Thirty-third Michigan Infantry.

Maj. James A. King, surgeon, Thirty-fourth Michigan Infantry.

John A. Bobb, assistant surgeon, Thirty-fourth Michigan Infantry.

Julius M. Wilhelm, assistant surgeon, Thirty-fourth Michigan Infantry.

Dr. George Goodfellow, of California, rendered volunteer service without pay to the wounded after the assaults on Santiago, and to wounded Spanish prisoners at El Caney. He was present with headquarters of the corps and rendered much assistance to the chief surgeon and general commanding.

Dr. Karl Rudberg, fleet surgeon, Royal Swedish navy. Distinguished services in the hospital at Siboney and on the *Iroquois* to Key West.

Maj. Charles P. Nancrede, surgeon of division, General Duffield's command at Siboney.

Contract surgeons who were with the Fifth Army Corps on its landing at Daiquiri and Siboney and during the assault and siege of Santiago de Cuba:

Acting Asst. Surg. W. W. Calhoun, Ninth United States Infantry.

Acting Asst. Surg. H. W. Danforth, Ninth United States Cavalry; fatally wounded July 2, 1896.

Acting Asst. Surg. W. E. Parker, divisional hospitals, Nos. 2 and 3. Yellow-fever service at Siboney and on hospital steamer *Olivette*.

Acting Asst. Surg. John Guiteras. Yellow-fever service at Siboney until July 30.

Acting Asst. Surg. B. C. Leonardi, Ninth United States Cavalry.

Acting Asst. Surg. W. P. Lawrence, Battery G, Fourth Artillery; also yellow-fever hospital at Siboney.

Acting Asst. Surg. R. N. Pitts, First United States Infantry, and in yellow-fever hospitals.

Acting Asst. Surg. Hamilton P. Jones, divisional hospital, No. 1. In charge yellow-fever hospital near headquarters and at Siboney.

Acting Asst. Surg. R. Echeverria, Light Battery D, Fifth Artillery, and in yellow-fever hospital at Siboney.

Acting Asst. Surg. Wilfrid Turnbull, battalion United States Engineers.

Acting Asst. Surg. F. E. Menocal, Second United States Cavalry, Sixth United States Cavalry, First United States Infantry, Headquarters Fifth Army Corps, and among Spanish refugees at El Caney.

Acting Asst. Surg. J. M. Delgado, First United States Cavalry.

Acting Asst. G. Surg. Moreno De La Torre, Tenth Infantry, to June 23. Steamer *Olivette* to —

Acting Asst. Surg. J. A. Tabor, Eighth United States Infantry.

Acting Asst. Surg. T. R. Marshall, Sixth United States Infantry, divisional hospital, No. 1, and among refugees at El Caney and Spanish prisoners.

Acting Asst. Surg. F. J. Cumbe, divisional hospital, No. 1, and yellow-fever hospital near corps headquarters.

Acting Asst. Surg. Arthur Jordan, Second United States Cavalry.

Acting Asst. Surg. A. E. Wynter, Thirteenth United States Infantry, and yellow-fever hospital.

Acting Asst. Surg. Thomas Y. Abr., Twentieth Infantry.

Acting Asst. Surg. E. R. Bragg, Third Infantry.

Medical officers who joined the command after the assault on Santiago and rendered service during the siege:

Maj. W. G. Willard, surgeon

Capt. Thomas C. Roberts, i

as Infantry Volunteers.

n. First Illinois Infantry Volunteers.

First Lieut. C. B. Walls, assistant surgeon, First Illinois Infantry Volunteers.
 Maj. Richard Pyles, surgeon, First District of Columbia Infantry Volunteers.
 First Lieut. S. C. Cox, assistant surgeon, First District of Columbia Infantry Volunteers.

Capt. C. F. Kieffer, assistant surgeon, United States Army, Artillery Battalion.

Maj. E. C. Farquhar, surgeon, Eighth Ohio Infantry Volunteers.

Capt. G. H. Wuchter, assistant surgeon, Eighth Ohio Infantry Volunteers.

Capt. A. V. Smith, assistant surgeon, Eighth Ohio Infantry Volunteers.

Acting assistant surgeons:

A. A. Snyder, divisional hospital, No. 8; Stanley Warren, Ennis Battery; J. Ram-
 burgh, detention hospital to ———; R. D. Boss, First United States Infantry to
 ———; J. T. Arwine, detention hospital to ———; J. McV. Mackall, Daquiri to
 ———; C. C. Marbury, detention hospital to ———.

2.

[General Orders, No. 8.]

HEADQUARTERS FIFTH ARMY CORPS,
 Tampa, Fla., June 2, 1898.

The following is published for the information of this command:

Suggestions to commanding and medical officers for the prevention of yellow fever, and the preservation of the health of the United States forces in the Tropics, by Dr. John Guiteras, United States Army.

The general hygienic rules for the government of military camps should be enforced. Your attention is called to the following special points:

The use of quinine.—The regular administration of quinine for the prevention of malaria is of doubtful advantage. Quinine, however, should be used when the individual is subjected to extraordinary depressing influences, such as traumatism, exhaustion. Several substitutes for quinine have been used by the Cuban army, but with little effectiveness. The best is probably a decoction of coffee and lemon.

Alcohol.—The excessive use of alcohol is specially deleterious in the tropics. Diluted wines, with the meals, are generally used, and with advantage. Stronger liquors internally, and in the form of frictions, may be recommended after prolonged exposure to wet. The aguardiente produced in the country is used with advantage in slight diarrheal troubles. In the treatment of the later stages of yellow fever effervescing alcoholic drinks are useful, but we can not prescribe the large doses employed in typhoid fever and pneumonia.

Fruits.—We would especially recommend the cocoanut water when the nut is green (may be found throughout the year), the sugar cane (from November to April), the sugar apple (August and September), the orange (during the winter months), and the mango (June and July). The latter fruit should be especially avoided when green or overripe. The sapodilla (May and June), the mammy apple (August), the banana (all the year round), and the pineapple (November and December) are less easily digested and should be eaten sparingly. The alligator pear (July and August) should be eaten with the meals, and not to excess. The tamarind and the ripe guava (the latter most abundant from June to November) are laxative.

The vegetables of the country—the yam, the yuca, the malanga, and the sweet potato—should be thoroughly cooked. Rice and plantains properly cooked are favorite dishes with the natives. They are nourishing and easily digested. I recommend that the method of preparation should be learned from the natives.

Water.—The spring waters in Cuba are usually good and abundant in many sections of the island. Yellow fever is not conveyed in the water, but typhoid fever and probably also malaria, dysentery, and some of the parasitic diseases are transmitted in the drinking water. Unless the water be obtained directly from the springs it should be boiled.

Bathing.—Bathing every day in the running streams is safe, and to be recommended. The best hour for bathing is about 11 a. m.

Clothing.—Light linen or cotton should be worn next the skin. Wool irritates the skin, promotes excessive perspiration, and prevents the cooling effect of evaporation. The danger of chilling by the rapid cooling of the surface under wet linen can be prevented readily by a change of clothing, or by an outer dry garment, or the woolen blouse, when the body is exposed to drafts of air.

The bed covering should be comfortable. Wet clothing and wet feet should be especially avoided during sleeping hours.

The tent flooring.—The hammock may be more comfortable than the floor, and it will certainly afford protection against troublesome insects, but there is no proof that the elevation of 2 or 3 feet from the ground will prevent the introduction into the body of the miasms of disease. If it be not practicable to swing large bodies of troops, there will be found in Cuba an abundance of tall grass that may be used in lieu of straw.

Work.—No exercise or exposure to the direct rays of the sun should be permitted between the hours of 11 a. m. and 3 p. m. The morning hours are the best for marching. The heavy showers and thunderstorms occur usually in the afternoon after 2 o'clock. The mornings are usually clear. Continuous rain storms are cyclonic, and they occur mostly in September and October.

The site of the encampment.—The ordinary rules should govern us in the selection of a camp site. The ground should be high. The prevailing winds are from the northeast, and the slopes of the hills fronting to this quarter should be selected. The privies should be located to the northwest of the camp.

With respect to yellow fever, two important facts should be borne in mind: (1) Yellow fever prevails habitually (so-called endemicity) only in a few and small sections of the island. (2) Yellow fever may be carried to, and when so carried may spread in, all sections of the country. The sections referred to under No. 1 are the populous centers, especially the seaport towns of commercial importance, such as Havana, Matanzas, Cardenas, Sagua, Santiago de Cuba, Manzanillo, Cienfuegos, Batabano. The large towns in the interior that have a free communication with the above are also frequently the seat of epidemics. In the country districts yellow fever is an imported disease.

The troops, then, should be kept, as far as it is practicable, out of the cities, and every precaution must be taken to prevent the introduction of yellow fever into the camps.

The means of conveyance of the disease into the camp will be through supplies, through prisoners of war, through detachments of our troops that may have been forced to occupy infected districts, through the smuggling of things into the camp. Against all these dangers we must institute the rules governing a strict quarantine. Our supplies should come from the north, and if depots for such supplies must be established on the island we should select noninfected places for this purpose. Prisoners of war should be corralled in a place of detention, guarded, if possible, by immune troops. The clothing of the prisoners should be disinfected at once. If no other measures of disinfection are available, we can place much reliance upon fresh air and sunlight, provided the exposure of every piece be complete. The period of detention and observation of these prisoners should extend over seven days.

The presence of a case of yellow fever in a camp is no evidence that the camp is, or that it will become, infected. Yellow fever is not directly transmissible. If the house, the room, the tent where a case of yellow fever is found be not infected, individuals may come in contact with such a case or cases without contracting the disease. Large yellow-fever hospitals have been managed without a single case occurring among the attendants, though these were not immune.

In the detention camps established by the Marine-Hospital Service near large epidemic centers the disease has never spread among the refugees. Of course, a certain proportion of these refugees are stricken down with the disease. They have contracted it in the epidemic center, and when they arrive in camp they are going through the process of incubation. The disease, therefore, breaks out within the first five days after arrival. The permanent residents of the camp—the attendants and the refugees who have been detained in camp longer than seven days—never contract the disease from these imported cases. This means that the camp has not become infected.

The measures taken to prevent the infection of these camps are twofold. (1) The baggage of these people is disinfected immediately upon arrival in camp. (2) A careful watch is kept upon these new arrivals and upon everybody in the encampment. On the first appearance of suspicious symptoms the individual affected is removed to a hospital especially provided for this purpose. The safety then depends upon the prompt recognition of the symptoms and the immediate isolation of the cases.

Our military camps should be divided from the start into two distinct and separate parts—one a main camp, the other a hospital camp. The latter should be situated from one-fourth to one-half a mile to leeward of the main camp.

A few tents should be placed about 100 yards from the hospital camp for the care of suspicious cases in which the diagnosis may be uncertain. This should be called the probation camp.

The hospital camp should be surrounded by a barbed-wire fence, and should be carefully guarded.

Even the hospital camp does not necessarily become infected. Disinfection of the clothing and the dejecta should be instituted to prevent this. The probation hospital should be carefully guarded against infection. When a case has been recognized as one of yellow fever and has been removed to the hospital camp, the walls of the tent should be washed down with a solution of bichloride of mercury, 1:2000, and the ground should be burned by a Barber asphalt furnace. Patients may be returned to the main camp ten days after the establishment of convalescence and after disinfection of the clothing.

If there be evidence that cases of yellow fever have originated in the main camp, it should be moved.

The diagnosis of yellow fever is based upon the following three cardinal symptoms: The characteristic appearance of the face, which may show itself with sufficient distinctness in the first twenty-four hours; and the albumin in the urine, and the peculiar discrepancy between the pulse and temperature. The two latter symptoms may not appear until the third or fourth day of the disease.

By command of Major-General Shafter:

E. J. MCCLERNAND,
Assistant Adjutant-General.

Official.

3. *Memorandum of instructions to the soldiers of the Fifth Army Corps for the preservation of their health in the tropics.*

The body adapts itself readily to changes of climate. You do not require any special preparation for the climate of Cuba. You should meet the heat in the same way that you do in the summer season of the North.

Avoid, therefore, the use of medicines that are recommended to protect the body against the action of climate.

The danger in the tropics does not come from the direct action of the climate. The danger is due to the presence, in some districts of the warm countries, of the microbes of certain diseases. The chief measures for the prevention of these diseases will be instituted by your commanding officers. There are no medicines that will protect us from these diseases.

Do not take quinine regularly when your health is good.

Do not take purgatives when the bowels are regular.

Drink boiled water when you can not get natural spring water. Stagnant surface water is specially dangerous.

If possible, drink water only at mealtime.

The fruits of the country are wholesome when eaten in season.

Avoid unripe and unsound fruits. Peel all fruits before eating. Use as little alcoholic beverages as possible.

The clothing should be light and loose. When wet from sweat or rain, remove it for drying and rub the body briskly with a wet towel until it is clean. Also, if exposed to drafts when perspiring freely, put on some extra covering.

When your feet are wet, rub them dry and put on dry socks, even if you can not change your shoes.

Protect yourself from mosquitoes by gloves and nets.

Bathe your whole body morning and evening if you can, but do not swim in the heat of the day, except under shade.

Sleep in dry clothing only. Otherwise keep awake and move about.

The health of the command will depend to a great extent upon the strict observance of orders not to communicate with suspected persons or places.

Report all sickness to a medical officer at once.

B. F. POPE,
Lieutenant-Colonel, Chief Surgeon, United States Volunteers.

REPORT AND COMMENTS ON SOME OF THE MEDICAL FEATURES OF THE SANTIAGO CAMPAIGN, BY LIEUT. COL. V. HAVARD, CHIEF SURGEON, UNITED STATES VOLUNTEERS.

Wars, like years, succeed, but do not resemble, each other. Not only do they each have special features, calling for special preparations, but the lapse of time works constant changes in the shape, size, and power of projectiles, so that each new campaign opens with problems unsolved and questions unanswered. The one subject about which military surgeons disagreed most—the behavior of the new small-caliber jacketed bullet—has apparently been solved, and solved in a

manner to comfort and cheer all who have labored to render war less destructive and more humane. This new bullet, from which the swift annihilation of brigades and regiments had been predicted, is shown, on a sufficient scale to be conclusive, to cause no more casualties than the large conical bullet of former wars, to cause proportionately fewer deaths (on the field and in hospital), and to give the wounded a much better chance of recovery. Never before have so many wounds healed by first intention, were there so few fractures, and so few operations performed.

At the battle of San Juan Hill, July 1, in which our troops assaulted and captured an almost impregnable position, the total number of casualties was 933 for the 7,000 troops present and under fire, a ratio of 13 per cent—namely, 11 per cent of wounded and 2 per cent of killed. At El Caney the total casualties were about 11 per cent. Among the Spaniards, who fought mostly under cover, the casualties were much under 10 per cent. Our proportion of killed in all the engagements at San Juan ($1,039:145 = 7.16$) was somewhat less than one-seventh of all struck; among the Spaniards it was less than one-fifth.

It would seem that for the purpose of invasion of an enemy's territory by sea, where no harbor can be entered and landing must necessarily be effected in open bay and through the surf, particular attention would be paid to the loading of transports, so that all needful supplies can be readily found, readily landed, and in such shape as to be easily carried into the interior. Concerning this matter, it is notorious that serious mistakes were made, arising from the apparent want of a systematic original plan and from the great hurry and confusion which marked the last days of preparation and loading. As a result, each regiment had more or less of its medical supplies lowered in the hold of its own or some other transport, and mostly inaccessible. Medical officers in dire need of many things stood on the beach day after day making futile efforts to get at their supplies in the holds of ships sometimes anchored only a few hundred yards away. The almost absolute want of means of landing and disembarkation is one of the amazing features of the expedition. There was but one lighter and not a single steam launch with the fleet of transports. Obviously the Navy was expected to furnish help in this respect, and it did at times and places, but was oftener conspicuous by its absence.

A bit from my personal experience will illustrate the situation. On June 29 I transferred the provisional hospital at Siboney to Surgeon La Garde and joined the cavalry division, of which I was chief surgeon. I at once realized the scantiness of our supplies and the impossibility of setting up a division hospital; therefore, on the very next morning, I returned to Siboney with Surg. George McCreery and an order for four wagons to get our medical supplies from the hold of the transport *Rio Grande*. Only one rowboat was available for the service of all the transports. We took passage in it and on the way stopped by the *Mohawk* to let off an officer. A member of the untrained crew, lifting his heavy oar, dropped it upon and through the bottom, so that the boat filled up rapidly and we had to scramble out upon the *Mohawk*. It happened that this transport was without a single boat on which to forward us to our destination, the *Rio Grande*, only 300 or 400 yards away, or send us back to the shore; and the captain, with the selfishness and indifference of many of his class in those troublous days, declined to make any effort in our behalf. It was only after several hours of shouting and signaling that we succeeded in drawing the attention of the lighter, and, after much difficult maneuvering, were rescued and carried back to the beach. The effort had been hopeless. I returned to the front that same evening empty-handed, leaving Surgeon McCreery behind. He succeeded in a couple of days, with the help of Assistant Surgeon Rafferty, in obtaining two wagonloads of supplies, which were a valuable addition to the overtaxed field hospital.

But few ambulances were brought from Tampa. Only three had been landed by July 1, and were available on the days of the fight at Caney and San Juan. They were ably handled by Assistant Surgeon Godfrey, but, in view of the number of wounded, played an unimportant part.

The wounded from San Juan were all brought to the field hospital on the day they were hit or before the following morning; many of them on improvised litters carried by hand. In the evening and during the night a few wagons returning from the front became available, and the sick and wounded were crowded into them in an apparently pitiless manner, but it was either this or else an indefinite waiting by the roadside. All or nearly all of the wounded from Caney were brought in by wagons the day after the fight. If we consider the abominable condition of the roads, the unruly state of drivers and mules, and the great difficulty of procuring the means of preventing jars and jolts, it is not saying too much that the 4 or 5 miles of wheeled travel from the battlefields to the field hospital cost the lives of not a few.

The question of transportation of medical supplies and patients is a vital one, and deserves more thoughtful attention than it has yet received. Reasonably or unreasonably, hardly anything short of perfection is now required from the Medical Department. To meet this expectation, we must accumulate stores on the most liberal scale and be left perfectly unhampered in our disposition of them. In this campaign we should have had a special medical transport ship in command of a medical officer, loaded with all the equipments and requirements of ambulance and field hospitals, and large reserve supplies—everything stowed away in its proper place and readily accessible. Such ship should have two large, stout steam launches and be in all ways independent. It could not be expected to carry ambulances and teams, but it could and should carry a train of, say, 80 picked and trained mules with 12 sets of packs, 12 small two-wheeled carts, and 12 mule litters; the packs or carts, or both, as roads may permit, to carry supplies to the front, and the litters to carry patients. Besides the medical ship, each regiment should have with it the material necessary, including hand litters, for a quick advance to the front, this material not to be stowed away in the hold, but kept above in the most accessible place and under the hand of the medical officer responsible.

Stress should be laid on the fact that ambulances are cumbersome, complex organizations, and (especially in a war of invasion), not available in emergencies when most needed. Pack mules and light 1-mule 2-wheeled carts are indispensable, whether we operate by sea or land. The inestimable value of these carts is not only as a means of transport before wagons and ambulances are available, but also as classified store vehicles, all the contents in their proper compartments and within reach. A large bulk of medical supplies filling up an army wagon is of no use until everything is unloaded and all boxes open; and by that time many bottles will have been broken and much stuff wasted, to say nothing of the time consumed.

As to the transport of patients, the Santiago campaign revealed painful omissions and brought out instructive facts. Hospital Corps men were sadly deficient in number, being (at least in the Regulars) less than 1 per cent of troops in the field, although all previous experience has shown the necessity of at least 8 per cent. This latter ratio should have been reached and organized before the Fifth Corps left Tampa; transfers of combatants to the Hospital Corps after boarding transports and landing upon the enemy's soil were obviously impracticable. It followed that all hospital corps men were absorbed by the field hospitals and dressing stations; and that not a single one was available as litter bearer.

The new regulation hand litter was conspicuous by its absence, having been left behind at Tampa and in the transports. It was hoped that, on account of its lightness and ease of folding into a small portable compass, this litter, in which we all took a just pride, would be available in limitless abundance and in that way make up, to a large extent, for all inevitable shortcomings of ambulances. It was a sad disappointment. Makeshifts of all kinds were resorted to—generally a heavy frame of poles covered with blankets and grass; many patients were thus carried 4 and 5 miles, over miry, deeply gutted roads, mostly at night, and most of them arrived at the field hospital in fair condition, much better than if carried in ambulance or wagon. Each of these improvised litters was borne by from 4 to 6 men, with a few additional bearers for a second relay, and therefore took away from 6 to 10 combatants from the line. One good effect of so many bearers was necessarily to "break step" and reduce the jolting.

In my opinion, the best means of transport, under the circumstances, would have been mule litters—that is, litters carried one on each side of a mule, as first devised by the French and now adopted in all armies but our own. Mule litters must become part of our equipment and will prove invaluable in our colonies.

Of travois, it did not occur to anybody to construct one, and not a single patient was thus carried away. Its construction would have been easy and taken hardly more time than that of a litter. The main difficulty was felt to be the procuring of animals. It would have been greatly to the advantage of patients to unhitch the six mules of a wagon and make them drag travois, but who, in those days, would have had the temerity to propose the abandonment of a single wagon while the whole front was clamoring for food and ammunition.

The regulation litter, wherever used, stood the tests of the campaign in a very satisfactory manner, and shows itself to be well adapted to its purposes. Its weak points are the canvas, which, under any unusual strain, bursts and tears, and the braces, which are liable to warp and break.

The new two-decker ambulance, constructed just before the war, is, in my judgment, such a defective and objectionable vehicle that I need say nothing further concerning it.

It was expected that the long range of the small-jacketed bullet would change some of our ideas of field sanitary organization, and this expectation has been realized. Distance does not now count for so much, while shelter counts for a great deal more. We may even go further and say that distance may distinctly increase the danger. The advance of large bodies of troops, like brigades and divisions, in formation of attack, has become more difficult. There is an instinctive, irresistible inclination to take advantage of all possible shelters, and this results in the breaking of the originally continuous line into more or less separated groups of battalions and regiments. This breaking or fragmentation of long lines becomes a matter of life and death, when, as at El Caney, a prolonged siege is maintained against an enemy having every advantage of position. Under the withering fire of an intrenched foe general officers lose their hold on the advancing line, and at the critical moment regimental officers must often take the final and decisive action, each one according to the conditions confronting him.

The deduction, so far as the medical department is concerned, is that each regiment in battle must be provided with proper medical personnel and material, and be more or less independent. The advice of modern writers to concentrate all supplies behind the brigade as a unit is not borne out by the experience of this campaign. Of course this regimental organization is only suitable for the battlefield and does not apply to the camp, where division hospitals very properly absorb most of the functions of the regimental hospitals.

The best place for regimental dressing or collecting stations will be the nearest place to the line of fire at which sufficient shelter can be had; such place will often be only a few yards back of the firing line, the latter being almost always along the crest of a hill or a rise of ground. The farther back we go the more exposed is the station to drop shots and the less useful it becomes. If there be no shelter in the immediate rear and it is necessary to pass over any large area swept by the enemy's fire to carry the wounded to cover, the removal of the latter becomes very questionable; chances must be balanced and opportunities taken advantage of.

I used the name "regimental dressing or collecting station," thus conveying a specific idea, which may be, and often is, a wide departure from the facts. The *raison d'être* of a station is primarily its convenient location and safety, much more than the particular organization in its front. Thus, in the attack on San Juan Hill, only one station was established, although several regiments were under fire, because there was but one available place (at the "Bloody Bend," under the low bank of the San Juan River). It was a poor place, not even safe, but the only available one, and Assistant Surgeon Newgard did wisely in locating it there, without regard to the position of the troops in front and rear of it.

After July 1, when our troops had carried the heights of San Juan, the "Bloody Bend" was no longer exposed to direct fire, but was still in danger from drop shots fired at least a mile away, and from sharpshooters. As patients continued to be brought there, and it was the farthest point ambulances could reach, it was thought best to retain it another day.

Meanwhile, other dressing stations were being established in the immediate rear of the firing line, not far below the crest of the hill and consequently in tolerably safe positions. It was recognized that one station may answer all the needs of a brigade; thus, a road led up to the rear of the Third, Sixth, and Ninth Cavalry and in a deep, hollow part of it Surgeon Harris established for the whole brigade a station which was comfortable, almost absolutely safe, and easily approached by ambulances. The First United States Volunteers (Rough Riders) and the Tenth Cavalry likewise joined forces and placed their station in a tolerably safe spot at the foot of a steep spur. The First Cavalry, being separated from the latter by a large exposed basin, required a separate station, which it shared later with two or three artillery batteries. Here natural shelters were very imperfect and a good deal of digging was required. In the same manner, stations were established all along the line, each corresponding to one, two, or three regiments, and sometimes to regiments of different but adjoining brigades.

According to books, each division of troops should have at least one ambulance hospital (ambulance station) 2 or 3 miles in rear and a complete, well-appointed field hospital 2 or 3 miles still farther back; but actual war is no respecter of theory and often upsets all our preconceived ideas. One field hospital was established near General Shafter's headquarters, 2 or 3 miles back of El Poso, and up to the time of the surrender remained the only one, and the only hospital organization of any kind in rear of the dressing stations, 4 miles away. Efforts were made to find another suitable place, but without success, owing to the facts that the country operated in was one vast jungle, with but few small clearings, and that there was but one road to the front. The only intermediate station was one improvised

under a grove of large trees near El Poso. Here much good work was done by the medical officer in command. Walking patients rested, received stimulants, and, if necessary, were placed in wagons impressed for the purpose; all litters were stopped and the patients carefully examined, but without meddlesome handling of the dressings; patients in wagons were given more comfortable positions; several tourniquets twisted tight, probably too tight, at the dressing station were loosened to the great comfort of the patient and the possible avoidance of serious injury. The application of tourniquets on the line of fire, immediately after the receipt of a bleeding wound, must be useful, but further back it is of very doubtful utility, and it will always be wise, if circumstances permit, to examine and loosen tourniquets in transit to the field hospital.

It is safe to conclude that, in future wars, the necessity for immediate operations being less and the patients able to stand longer transportation, less stress will be laid upon the importance of the ambulance station, which will generally be merged into the division or field hospital. It will be enough to have an "observation station" to see that all patients in transit are in the best condition possible to reach the hospital safely.

It is not my purpose to discuss matters pertaining to the field hospital; this I leave to others more directly interested and better informed, but the work in first aid done along the line should not be left unnoticed. Little dressing material had been taken to the front. Fortunately, first-aid packets were plentiful. Medical officers had succeeded in impressing upon many officers and men the necessity of carrying these packets, and along almost every part of the line they could be had in sufficient quantity and were invaluable. Probably never before have first-aid packets played such an important part in the treatment of gunshot wounds. Our surgeons and hospital corps men had hardly anything else, and, in truth, did not need much else. Let the surgeon of the next war provide himself with plenty of first-aid packets, wire splints, a small case of instruments, rubber tourniquet, and a bottle of stimulant, and he is suitably prepared for all the eventualities of the firing line and dressing station.

The packet being of such vital importance, its composition should be carefully studied. We know how much depends upon the proper application of the first dressing and the necessity for leaving it undisturbed until special indications call for a reexamination of the wound. This first dressing is made easier and more successful with large compresses, say twice the size of those now in use. Compressed cotton, containing an antiseptic powder, and which can be readily spread out, would, I think, prove a much better material than gauze.

Diagnosis tags were not generally used. Many of the surgeons who were provided with them failed to appreciate their value, thinking that when minutes are so precious tags do not matter. From my own experience of the tags seen in front, on the road, and at the field hospital, I am more than ever convinced of their great utility (under an improved form) and would urge that no dressing be considered complete until the tag is pinned on.

After the surrender of Santiago, when the troops had selected the best sites for their camps, and tentage was abundant, each division set up a hospital of its own, the overflow from which was received into a large field hospital established at a central, readily accessible point. In addition to these, each regiment had also a few hospital tents for its milder cases. This organization appeared to be the best possible under the circumstances, and gave excellent results.

In closing, one is naturally prompted to call attention to the excellent, nay, admirable work of our surgeons along the line of fire. I never heard that any medical officer had shirked his duty because of danger, or failed to help a patient that he could reach. I was specially well situated to see the first-aid dressing applied to the wounded under fire, on June 24 as well as on July 1 and 2, and could not help admiring how carefully and effectively the compresses and bandages of the packet had been applied in a majority of cases, as well as the improvised splints in fracture cases. Very few patients reached the field hospital with wounds unbound and unsupported.

REPORT OF MAJ. LOUIS A. LA GARDE, SURGEON, UNITED STATES ARMY, ON THE OPERATIONS OF THE "BASE HOSPITAL," AT SIBONEY, CUBA.

[Dated October 31, 1898.]

Origin of the hospital.—The hospital was the outgrowth of a field hospital which I was ordered to establish in accordance with paragraph 2, Special Orders, No. —, dated Headquarters United States Forces, Tampa, Fla., May 3, 1898, for

the accommodation of the troops serving in Port Tampa and vicinity. The troops serving on the ground were composed of the Ninth Cavalry and the 10 light batteries of the artillery arm. These troops were not brigaded; each arm was commanded by its ranking officer, independently.

The hospital was established as is contemplated in our scheme of organization, by calling in all property and personnel, except such minimum allowance as might be required by the battery and regimental surgeons at sick call. In the manner mentioned we found ample supplies of all kinds for the immediate needs of the command. There were 9 medical officers, 1 hospital steward, 11 acting stewards, and 85 privates of the hospital corps for duty.

As time passed during the month of May, it became more and more certain that the troops serving about Tampa would be organized into an expeditionary force for the early invasion of Cuba. The exact time for the latter was always a matter of doubt, still the officers in all the departments worked faithfully to complete and perfect their organization with the view of placing themselves and those under them on a war footing. About the middle of May I was informed that the field hospital at Port Tampa would be designated as one of the divisional hospitals of the Fifth Corps. I never knew until June 8, the day of embarkation, that it would be known as the reserve divisional hospital. When the object of the hospital dawned upon us, we proceeded in earnest to supply it accordingly. By this time the matter of obtaining medical supplies had become very much simplified by the establishment of a medical supply depot at Tampa, from which we obtained all the necessary medicines, dressings, some stores, especially stimulants, bedding for 200 men in the event of battle or other necessity. The necessary amount of tentage, a thoroughly equipped ambulance train of 10 ambulances, and mounts for 66 members of the Hospital Corps were obtained by timely requisitions upon the different departments. First Lieut. and Asst. Surg. James M. Kennedy was appointed ambulance chief, and it was largely to his indefatigable efforts that the train was placed in condition for field service in such a short space of time.

Orders to embark on transports with the rest of the Fifth Corps were received on June 6. The hospital, consisting of the following personnel and supplies, was loaded on the steamship *Saratoga* on the 8th: Three medical officers, 1 steward, 2 acting stewards, 17 privates of the Hospital Corps; tentage, bedding, medical supplies, and stores, as already stated, for 200 men. The stores, with the exception of stimulants, were insufficient. We trusted to the commissary, which carried an abundance of milk, soups, and other delicacies for the sick. Our deficiency in medical officers and personnel generally was painfully apparent, but the hurry and confusion of throwing a large army in the field so suddenly made this unavoidable. Our large number of members of the Hospital Corps, which at one time aggregated 69 men, had been reduced from time to time by demands from the corps surgeon to supply deficiencies elsewhere. At the last moment we were informed that the ambulance train and mounts for the Hospital Corps could not be taken, presumably for lack of transportation. The train was left encamped at Port Tampa, under command of Assistant Surgeon Kennedy, to be shipped at some future time. Request was made of the chief surgeon Fourth Corps not to disintegrate the train unless it should become absolutely necessary. I am happy to state that the request was strictly complied with.

Aside from the reserve divisional hospital, the steamship *Saratoga* was loaded with the Thirteenth Infantry and one battalion of the Twenty-first Infantry, Lieutenant-Colonel Worth, commanding. The voyage to Siboney, our place of landing, was long, tedious, and marked by many weary delays. The command was on board ship nineteen days before disembarkation took place. The overcrowded condition of the ship for a long voyage, the inadequate ventilation and heat between decks, the hot, blue woolen uniform, and the sameness in the diet of the travel ration had begun to tell on the strength of the men, whose resistance had been correspondingly lowered for the exigencies of an arduous campaign in the tropics, out of season.

The comments I may have occasion to make in this report are not employed with a view to criticise the conduct of my superiors. I believe we should all be mindful of the fact that the conduct of a war in the tropics is to us a new business, and that we were apt to make mistakes, which are now generally admitted. It is by a candid admission of certain facts that we can the better prevent such errors in the future. I believe that the overcrowding on the transports on the way to Cuba had much to do with subsequently reducing the effectiveness of the command. I am of the opinion that we erred in allowing ourselves (1) to believe that we were attempting a short voyage, and (2) we erred in estimating the carrying capacity of our vessels by the rule observed with the British troopships of "a man to 1½ tons, an animal to 2½ tons." This rule is applicable to ships with clear between decks, especially constructed for the transportation of troops, like those

possessed by England; but it is not in any way applicable to the passenger and freight steamers fitted up with tiers of bunks, composing the fleet which carried us across. In the vessels built for the purpose with clear between decks the space is occupied during the sleeping hours by men in tiers of hammocks. During the day the hammocks are taken down, thereby increasing the superficial area.

I was ordered by the adjutant-general of the United States forces near Tampa, by letter dated May 8, to inspect certain transports then lying at Port Tampa. The letter was accompanied by a memorandum estimate of the carrying capacity of the transports. It was at once apparent that the carrying capacity had been largely overestimated. For instance, if we take the *D. H. Miller*, by the memorandum, which was based on "the ton and a half rule," we find that its reputed capacity was 1,116 men, while its actual carrying capacity, as determined by due regard to superficial area and cubic air space, was found to be but 841 men. The latter figure agreed exactly with the judgment of the captain as to the capacity of his vessel, and the same may be said of the other captains of vessels when the figures obtained by the two methods were shown them. They invariably admitted that the tonnage rule could not apply, except for an extremely short voyage.

After the command had been loaded upon the transports, June 11, prior to sailing, there were many complaints of overcrowding on the *Saratoga*. On the latter date I stated as follows: "As an instance of overcrowding, * * * the vessel that I am on gives but 77 cubic feet per capita in the after part (aft between decks), where tiers of bunks have been erected. At two inspections last night the heat and fetid condition of the air was intense. The men lay in their bunks naked, fanning themselves with their hats. Such a condition of overcrowding is not justified, except for a short voyage, not to exceed twenty-four hours. There are six cases of fever that have developed in the last thirty-six hours." We succeeded in having two of the companies of the Twenty-first Infantry removed to another transport. Still the overcrowding was in excess for anything except a very short voyage.

In a report to the assistant adjutant-general, Third Brigade, First Division, Fifth Army Corps, dated off Santiago, June 20, 1898, a report required by the manual (Troops on the March and in Campaign), I again touched upon the subject of overcrowding. "The practice of harboring men on these transports in tiers of bunks between decks is pernicious in the extreme. * * * As the floors are required to be washed once per week, the dampness that ensues for the want of aeration lasts two and three days. The bunks deprive the men of the superficial area upon which to move about in the day, to say nothing of their infringement upon the cubic contents. The bunks are superimposed in tiers of three double bunks with passages between so narrow that two men can scarcely pass each other. * * * Two cases of measles and 13 cases of fever from heat and exhaustion were noticed." As stated before, the men on the *Saratoga* were cooped up in this manner nineteen days, which lacks a great deal of being a short voyage.

The troops disembarked at Siboney on or about June 26. On the latter date I went on shore with the corps surgeon and the surgeon in chief of Admiral Sampson's fleet. We walked the ground over carefully in our endeavor to find a site for a hospital. Troops were quartered everywhere. Camp sites were limited, there were no sinks, and the stench from dried and recent human excreta overpowered the senses on all sides. The population and houses comprising the town of Siboney had but little to recommend them better than the ground outside. The vicinity just north of the landing was marked by a number of sloughs, which precluded its use for a hospital site. The region to the east was rocky and marked by high hills. To the west lay the site of Siboney, well drained, but rather contracted. The subject of burning the town down to prevent any possible infection from yellow-fever, and to allow more available space was discussed and repeatedly urged. The fleet surgeon stated that this had been done by the Navy at the point of landing at Guantánamo. The wisdom of such a step was brought to us very forcibly afterwards.

We commenced to unload the hospital the next day, the 27th. We had but 17 members of the Hospital Corps, and 8 small boats to move our stuff, which in bulk amounted to one and a half carloads. The *Saratoga* lay 800 yards in the stream, the surf was high. The plan was to have a detail to load on the ship, and when the boats were loaded, to row one and tow the rest to shore, where another detail proceeded with the tedious work of unloading. The surf being high—there were no docks—the small boats could not be gotten nearer than 15 feet from shore, so that it was necessary for the men to walk in the water waist deep for the property, which was placed on their backs and carried to the beach. It was not possible to land much property in one day under such circumstances; still we continued to work in this way, as the only means at our disposal, until orders were

finally issued to place the property on one of the lighters, while Colonel Weston, the chief commissary, very kindly unloaded it for us.

The hospital site on Siboney's water front was about a half mile from the landing, to which all the property must be carried by human muscle. Large details were obtained for the purpose from the commanding officer at Siboney.

About 80 patients with wounds, measles, heat stroke, fever, etc., were quartered in an old store under the care of Maj. V. Havard, United States Army. As Major Havard's division had gone to the front, the hospital was turned over to us. Capt. M. W. Ireland was placed in charge, while I busied myself transferring the property from the landing, superintending the pitching of tents, and the arrangement of a record room and dispensary. Assistant Surgeon Fauntleroy was placed in immediate charge of all arrangements pertaining to the operating room. His fertility in resource—in making something out of nothing—may be mentioned in part herewith; tubs for slops, and bichloride solutions were made out of barrels and kegs sawed in two; glass demijohns of 3 and 4 gallons capacity, found in a store near by, were utilized as jars for sterilized water and antiseptic solutions; operating tables were made by placing litters on the frames of bunks from an old Spanish barrack. These bunks were higher than common, and they answered the purpose very well when covered with a rubber cloth.

Tables were taken from the offices of the Juragua Company's offices and other buildings, to hold dressings, instruments, etc. The water main of the little town was tapped opposite the operating room so that water was provided in abundance. With few exceptions our assortment of instruments was liberal, having provided ourselves from Fort Robinson, upon taking the field; and later when Dr. Fauntleroy joined us at Port Tampa, on the eve of sailing, he brought a large assortment. In this way we had instruments sufficient to supply six tables very nearly. A few instruments were furnished by Major Nancrede, United States Volunteers, and Dr. Lesser, of the American Red Cross Society. The vexed question of sterilizing dressings in the field was overcome by the abundance of clean dressings so handsomely prepared by the makers, and abundantly furnished by our department.

On the morning of July 1 we were ready for the reception of 200 wounded. We soon learned that an advance of our line had been ordered and that the troops were engaged in battle. Our base was practically stripped of soldiers. The Thirty-third and Thirty-fourth Michigan regiments, under General Duffield, who commanded at Siboney, had been ordered, on the night of June 30, to make a demonstration on Aguadores, on the left of our line, along the Juragua railroad, 8 miles to the west. His command, which was entirely composed of infantry, fared badly in running upon some batteries which poured shell and shrapnel into it, causing a rather precipitate retreat. A train bearing 2 dead and 7 wounded steamed in front of the operating room, accompanied by Majors Nancrede and Vaughan, shortly after noon. The wounds were caused by fragments of a shell, necessitating two amputations, one of the forearm and the other of the thigh. Later in the day some of the less severely wounded commenced to arrive from the main line. Their reports of the extent of our casualties were necessarily inaccurate and conflicting. At about 10 p. m., a teamster road into camp on one of his mules, stating that a train of 8 wagons of wounded was blocked on the road to our advance, 4 miles away, and that men were needed to extricate the wagons from the mud.

I proceeded with the teamster to obtain an order from General Duffield for a detail of men. Before the detail had time to reach the sufferers they had received assistance from some other source. They reached the hospital at about daybreak. Many of the wounds had to be re-dressed. The injuries were not severe, as a rule. We busied ourselves in providing beef tea, coffee, etc. I regret to say that our outlay of delicacies was very limited. As stated already, we had depended for condensed milk, soups, oatmeal, lime juice, and other delicacies, upon our commissary department, which was well provided with such articles of light diet; but, for the lack of facilities to land, these articles were still on the transports. The landing of the troops was done in such a precipitate manner that ammunition and the bare ration of the soldier seemed by military necessity to be the first consideration. It was at this time that I remembered the offer of the honorable Clara Barton, president of the American Red Cross Association, through the corps surgeon, to assist us in any way she could with supplies and help from the *State of Texas*, which lay at anchor near our landing. I desire to testify herewith to the loyal manner in which this promise was kept.

While the wounded for four days kept crowding large details of men could provide them with car- ants worked unremittingly with us to relieve. They furnished us, with willing hearts and w

pital faster than Barton's assist- ing humanity. ies like gruel,

malted milk, ice, soups, etc., when military necessity prevented us from getting our own. As the wounded crowded upon us in numbers far beyond anything we had reason to anticipate, they came forward with cots, blankets, and other articles for the comfort of the unfortunates. For such help at a moment of supreme need, coming from people in no way connected with the military service, the deep sense of gratitude, not only of the medical department, but of the whole of the Fifth Corps, can not be conveyed by words. I desire to emphasize our gratitude in this manner because efforts have been made to make it appear that the medical department was not mindful of the extent of the services rendered; and, again, there are those who have attempted to minimize the efforts and preparations of the medical department of the army, while in their opinion, the bulk of the credit in the care of the wounded at Siboney belonged to the Red Cross Association. As far as my personal knowledge extends, the officers of the Red Cross Association are not responsible for such impressions. They are willing to accord to the medical department due praise for the work it had to accomplish under great difficulties. They understood the military situation which governed in the premises, and saw, as we did, our helplessness, for the time being, at least.

The actions of the 1st, 2d, and 8d of July, as already stated, crowded our hospital to overflow. In addition to canvas shelter, a railroad shed was used for cases of measles. A small cottage containing about 20 beds was turned over to the Red Cross Sisters, under Dr. Lesser, for wounded officers and men, and the large cottage, known as the Garcia headquarters, was used as a fever hospital, under Maj. John Guiteras, surgeon, United States Volunteers. The latter, who was the yellow fever expert of the expedition, had inquired into the history of the last two of these buildings, and, from reports made to him by the Cuban population, he was reasonably sure that they were free from infection, which opinion, we regret to admit, was far from correct, as the sequel will show.

At the same time that the kitchens were preparing diets day and night and that men detailed from the regiments were helping the regular Hospital Corps men to care for the wounded, the operating room was the most active part of the hospital. On the 2d of July, Drs. Nancrede and Fauntleroy, of the operating staff, requested me to ask the Sisters of the Red Cross to assist at the operating tables. The second day of work had convinced us that we were very much in need of those having special training in operating-room technique. The few men we had possessing the qualifications necessary in this department were not able to satisfy the wants of the five and six tables that were running constantly, day and night. Accordingly I applied to Dr. Lesser for the Sisters, four in all, I believe. I also extended Dr. Lesser an invitation to assist in the operating room. We thereby received the benefit of their skill during the rest of the work which followed for the next few days.

After the services of the Red Cross were no longer required in the operating room, the worst cases among the wounded were placed in a ward over which Mrs. Lesser and her assistants ministered to the needs of those who required special nursing. In addition to the services of the Red Cross people, I desire to mention the names of Lieut. Col. Philippe Varanes, assistant surgeon-general, Cuban army, also Surgeons Lewis, Elliot, Smith, and Spear, United States Navy, from the *New York*, and Dr. Karl Rudberg, royal staff, Swedish Navy. These surgeons, with Majors Nancrede, Vaughan, Captain Ireland, First Lieutenant Fauntleroy, and Acting Assistant Surgeons Parker and Lawrence, United States Army, formed the operating staff of the hospital. As the members of the operating staff became exhausted from overwork, their places were taken at different times by Major McCreery, Captain Winters, First Lieutenant Smith, United States Army, and others who were ordered by the corps surgeon as assistants. Later, upon the arrival of the hospital ship *Relief*, Lieut. Col. N. Senn, chief surgeon, United States Volunteers, and Acting Asst. Surg. Harry S. Greenleaf, gave us assistance. Our only regret was that this distinguished party had not been with us earlier. When the surgical work was completed, Colonel Senn busied himself in other fields. In the sanitary department he inaugurated reforms that proved of great value.

On the evening of July 4 the hospital contained over 500 wounded men and officers. Such a number so far in excess of our calculations, which, as was shown afterwards, was but a fraction of the number yet to come, was naturally appalling. The military surgeon is nearly always at a loss to estimate beforehand the probable casualties on the eve of action, since his knowledge of the battle tactics are too often limited by the military commanders, who keep their plans to themselves. Aside from these difficulties, common to all battles, the operations about Santiago presented unknown problems of a highly interesting character to all military men. For the first time in the history of the new armament two large opposing armies were to contest the ground between them with the hand weapons of reduced

caliber employing smokeless powder. Although much has been written upon the casualties of battle to be expected under such circumstances, the opinions of men amounted to little more than theories prior to the operations in question.

If one will take pains to run over Longmore's tables on the subject he will find that the casualties in war have not kept pace with the improvements in firearms, and this is especially true of the period which marks the evolution of the rifle from the smooth-bore gun. The reason is plain enough since troops in the days of the flintlock weapons, having a maximum effective range of 80 yards, advanced upon each other in close formation. The casualties under such tactics were apt to be larger than subsequently when additional range, flatter trajectory, and penetration were conferred upon the projectiles. The change of warfare in late years has really been a race between the scientific gun makers and the tacticians. As the former added range and penetration to their weapons, the latter sought to thin out their ranks—to fight in extended order—for the purpose of lessening the casualties incident to superior ballistics. The action near Santiago was about to furnish the first opportunity for an actual test of the new battle tactics with the small-bore rifle.

The opposing armies were about equal in number. They were armed with virtually the same gun. The arm of the Spaniard—the improved Mauser—has some advantages in penetration over those of the Krag gun, but they are so very slight that they need not be considered in battle. The wounds which the two guns inflict are practically the same. Writers upon the effects of the new armament in battle have estimated the results quite differently. Some have maintained that the new arm would be more deadly—that is, that the usual ratio 1 to 4 or 4½ between the killed and wounded would be materially altered; that henceforth there would be one killed for every 2, or possibly 3, wounded. But few have maintained the opposite condition. There are those, again, who have argued that the percentage of the wounded to the number of troops engaged would be less than heretofore, owing to the extended order, except in those rare instances when troops should be more or less massed to assault fortified positions, at which times the casualties would far exceed those with the use of the less effective weapons. I have written at length on this subject to show the additional reasons which served to mystify the surgeon in basing his calculations on the estimate for supplies and personnel, and especially the distribution of the latter. Had it been known beforehand that the battle about Santiago must consist of dislodging infantry armed with Mauser rifles, intrenched in well-fortified positions, with no artillery preparation on our part, and that the approaches to these positions must be along narrow paths—death lanes—it would have been in order to put the bulk of the relief corps at the collecting stations and well to the front.

The transportation of the wounded in escort wagons was attended with much suffering and inconvenience until the unloading of the ambulance train, which we had left, as stated, at Port Tampa, under Assistant Surgeon Kennedy. The train arrived on the *Louisiana* and commenced to unload at Daiquiri on July 1, the day of the battle. Two ambulances reported to me on the same day and were hurried to the front that night. The rest of the train was unloaded by July 3. As the ambulances were unloaded they were hurried to me, and I, in turn, dispatched them to the front with such medicines and dressings as were needed. This train continued to do invaluable service, day and night, in transporting the wounded and afterwards the sick to the hospital at Siboney until about August 1.

The lack of skilled nurses in the care of the wounded and sick was one of the chief troubles at the base. The volunteer organizations left as guard did as well as they could to assist us. Some of their men had received training in first aid, but the proportion was too small to result in much benefit. Even this help, as unsatisfactory as stated, could not be depended upon. Military necessity often deprived us of it at the very time we needed it the most. From one to two companies of infantry were constantly required for the proper policing, guard, to assist in nursing, etc.

On July 7, after one company of infantry had been distributed for the night among the various wards, which contained nearly 500 wounded, a sergeant came to the hospital, and, without reporting to the surgeons on duty, passed the word down the rows of tents "that the company should assemble at its camp at once." The surgeons became aware of our plight at about 9 p. m. Upon inquiry I was informed by the commanding officer that the troops had all been ordered for outpost duty. The surgeons and the day nurses, already worn out with watching, had to care for the distressed rest of the night. I made repeated endeavors to obtain larger and more permanent details, but to no purpose. Finally the arrival in camp of Col. Charles R. Greenleaf, United States Army, chief surgeon in the field, had the effect to clear matters. The whole of the Twenty-fourth Infantry was ordered from the front to assist us. The discipline of these seasoned troops

changed the aspect of affairs at once. For the first time in the history of Siboney order loomed out of chaos.

During those days of uncertainty as to help and lack of sufficient quantity of supplies from the 1st to the 8th of July, for causes already mentioned, I wish to record the many acts of kindness of the gentlemen of the press in our behalf. Mr. Lyman, president of the Associated Press, furnished us ice and delicacies often. Mr. Hearst, of the New York Journal, sent us ice by the ton, and gave us the use of his steam launch to tow the wounded to the transports and to bring supplies to shore when it was impossible to obtain other transportation. The spirit of humanity which prompted these gentlemen to come to our assistance, so regardless of their own interests, was beautiful.

The work of Capt. E. L. Munson, adjutant, of the medical department, Fifth Corps, in unloading supplies from the different transports, from the 1st of July to the 4th, supplied many deficiencies which must have persisted without his excellent efforts.

Although we might have done better with transportation of our own, and though the disappointment because of our inability to get at all of our supplies was bitter and exasperating in the extreme, we managed to care for the wounded, with no special amount of suffering, until the arrival of the hospital ship *Relief*, August 8. This vessel, so well equipped for the work at hand, was laden with 1,000 cots, and everything in the way of hospital supplies in quantities to correspond. Our hospital then assumed other functions besides the care of the sick and wounded from the front. Paulins and flies were pitched to receive this veritable purveying department. Captain Ireland was placed in charge of all supplies, and it was to his admirable method of systematizing his difficult task that the different hospitals and camps of the army were supplied by rail, ambulance, and wagon trains.

Knowing that we were at the place where the relief ships would first touch, the orders were at all times to send to the different points all supplies asked for. When we had run so low at one time that the wisdom of our liberality seemed questionable, the steamer *Resolute* hove in sight to supply all impending deficiencies once more.

The character of wounds.—The wounds inflicted by the improved Mauser did not differ from the wounds of the reduced caliber weapons generally. They correspond to the wounds inflicted with the new arm by experimenters on the cadaver, dead and living animals, as well as those heretofore noted on man by accident and in war. The explosive effects so often noted in wounds at close range were not seen, for the reason that none of the wounds were received within the zone of explosive effects, which, under some conditions, though rarely, may extend to 500 yards. Those organs containing tissues rich in fluids, incased in cavities with bony walls, are more apt to show these highly destructive effects. The absence of these ugly wounds was often commented upon by surgeons. It is safe to say that examination of the dead on the field could have shown evidences of explosive effects in the wounds of the head, the heart, liver, spleen, intestines, etc. In reckoning upon explosive effects one should always remember the factors upon which they depend. To be brief, destructive effects are commensurate with velocity and sectional area of the projectile on the one hand, and with resistance in the body on the other. High velocity, greater sectional area, and greater resistance exhibit explosive effects, and vice versa.

It should also be borne in mind that only two things offer resistance in the body, viz, (a) compact bony tissue and (b) water. The fractures of the long bones were attended with but little comminution, and in quite a number of instances with guttering and perforation unattended with fracture. More than a score of gunshot wounds of the kneejoint were treated by immobilization and simple dressings alone with the happiest of results. Injuries of the joint ends of bones were invariably marked by clean-cut perforations. The injuries of the soft parts were comparatively trivial. Wounds of the head involving injury to the brain matter had to be opened up on several occasions on account of sepsis. The skullcap invariably showed fissures radiating between the wounds of entrance and exit, and islands of bone, sometimes free from dura and periosteum, but more often attached. All wounds of the lungs were recovering rapidly without apparent complications when received in hospital. The wounds that astounded us all were those of the abdomen. Four were noted of such wounds which, from the anatomical regions traversed, must have involved the caliber of the intestines numbers of times, and yet recovery had taken place with no apparent sequelæ or ill effects of any kind. These cases were very wisely kept at the field hospitals, well to the front, until recovery was assured. Capital operations, such as amputations and opening of the larger joints, were done but seldom, and then only for

sepsis, which, in the nature of things, would seem to be unavoidable in war in a certain proportion of cases.

Another circumstance which rather puzzled us was the frequency with which lodged balls were seen. This was variously attributed to (1) defective ammunition, (2) ricochet shots, and (3) long range. By testing the penetration of the two ammunitions in blocks of yellow pine, Capt. Charles A. Worden, United States Army, was able to demonstrate for me the fallacy of the first of these theories. The Spanish ammunition penetrated as much as 9 inches farther in the wood than ours, a fact which is not surprising, since the muzzle velocity of the Mauser is greater than that of the Krag-Jorgensen, and since, also, the sectional area of its projectile is slightly less. The lodged balls were evidently due, therefore, to ricochet shots through the thick underbrush and to long range. Acting Asst. Surg. W. E. Parker visited Santiago late in July to confer with the Spanish surgeons upon their observations concerning the character of the wounds from our guns. He informs me that their conclusions tallied with ours in every respect. They remarked especially on the number of lodged balls, which they attributed to long range, and the number of recoveries from gunshot wounds of the abdomen with undoubted intestinal perforations.

When we contrast the ravages inflicted by leaden bullets of large caliber with the humane effects of the projectile of reduced caliber noted in this battle, it is not extravagant to say that the portable hand weapons of to-day have largely reduced the subject of military surgery to first-aid work.

Although the operating staff was occupied for a period of five days of incessant work in the operating room, the surgical work consisted principally in the redressing of wounds. The number of operations of all kinds was very small.

Yellow fever and the burning of Siboney.—On July 11 we had cleared the hospital of wounded by shipments north, and by the restoration of a few light cases to duty. The negotiations for the fall of Santiago were pending; still, our experience of a few days back convinced us that another battle of infantry, pitted against infantry with the new arm, must give in this instance a large casualty list to the attacking army. Our efforts were, therefore, directed to meet the exigencies of such a contest. More tents were pitched and wards were arranged in order for the reception of the wounded. Fortunately our apprehension in this direction was not realized. Yet there was a foe at work which was soon to put our resources to the severest test. About July 6 Maj. John Guiteras, our yellow-fever expert, reported that he had a suspicious case from our advance post near Aguadores Bridge. The admissions from yellow fever very soon multiplied day by day, and we at once established a detention station near the fever hospital in the old Garcia headquarters. In a very few days cases from the front commenced to arrive. The cases became so numerous that a yellow-fever camp had to be established on the railroad to Firmesa, 2 miles to the east.

To augment our difficulties, it was discovered, about July 9, that the buildings occupied as hospitals, dwellings, and offices in Siboney were recognized as sources of infection. Men of the Signal Corps, who had never gone away from the base and who lived in the offices of the Juragua Iron Company occupied by us as a telegraph station, were taken ill with the disease. Surgeons and nurses were taken down in the Garcia and Clara Barton hospitals. The wisdom of occupying these buildings for any purpose had always been a matter of doubt. We deferred all questions of this kind to Dr. Guiteras. The reports to him from the Cuban physicians were most positive that the houses were free from infection and that yellow fever had not prevailed in the buildings which we were induced to occupy. I believe that the reports were probably true with regard to the non-susceptible Cuban population. For the susceptible American, it is doubtful if any part of Cuba in the vicinity of our base was safe. Infection is not only prevalent in the habitations; it is to be met with in the shady nooks about rocky recesses, caves, arbors, etc.

At one time two regiments—the Twentieth Regulars and Thirty-third Volunteer Michigan—led in the number of admissions from yellow fever. The latter regiment was then encamped on ground such as I have described, recently vacated by one battalion of the Twentieth, while the rest of the regiment was encamped on more open ground. Reference to the hospital records showed that the battalion of the Twentieth Infantry, composed of Companies A, E, F, and H, furnished all the cases of yellow fever from that regiment except one, the latter coming from that part of the regiment camped in the open. This is certainly convincing evidence with regard to the common origin of the disease in the two regiments, especially as the Thirty-third Michigan had camped nowhere else.

The destruction of the town of Siboney by fire seemed to be a matter of absolute necessity. In thus destroying this dirty little town, we were, at least, sure of

limiting the number of new cases about us, and, as already stated, we needed the room to extend our canvas hospital, which was from the beginning on very contracted premises. Accordingly, on July 9 a formal request was made to headquarters at the front for the necessary authority. The authority was granted on the 11th and the buildings in West Siboney were burned on the 12th. The remainder of the buildings, with the exception of the railroad shed and a sawmill near the landing, were similarly destroyed as soon as vacated.

The accessions of malarial and yellow fever cases from the front continued until July 31, on which date 90 cases were admitted by transfer from Dr. Jones's hospital. By July 20 yellow fever had developed so rapidly among the patients in hospital and the overflow in the detention camp was so far in excess of our ability to accomplish transfers to the yellow-fever hospital that we were compelled by the universal presence of the infection to declare everything in the way of a canvas hospital about us a yellow-fever hospital. The lines which had heretofore defined the yellow-fever hospital from the detention camp and the hospital proper were no longer regarded. Certain wards were set aside for yellow fever; beyond that no effort was made to isolate those infected. The steamship *Resolute* arrived July 25, laden with 10 immune surgeons, 35 male and female nurses, and large quantities of supplies of all kinds. August 2 the *Olivette* appeared in Santiago Harbor with large quantities of supplies, 35 immune nurses, and more immune surgeons. The sick, under these circumstances, received the best of care. The female nurses proved a great comfort to the sick, and physicians who came with them worked most faithfully.

August 5 the register showed 816 sick in hospital from all causes. It was on this date that I was taken ill with fever. I struggled to do my work until the 7th, at which time I was too much overcome to continue longer on duty. I turned the command over to Maj. W. C. Gorgas and placed my name on the sick list.

In closing my report of the events which have connected me with the reserve divisional hospital of the Fifth Corps it is fitting that I should testify to the heroic deeds and faithful services of some of its officers.

Capt. M. W. Ireland, assistant surgeon, United States Army, the executive officer, deserves special mention. He has demonstrated unmistakable capacity for work. He was the only one of those connected with the hospital from its establishment at Siboney to escape entirely the effects of the tropical diseases. Aside from his ability in the executive department, he showed skill and rare judgment in the operating room in the early days of July.

First Lieut. J. M. Kennedy, assistant surgeon, United States Army, ambulance chief, deserves mention for the skill and celerity with which he outfitted his train for field service at Port Tampa and for his faithful performance of duty in the transportation of sick and wounded from the 1st of July to the 1st of August.

First Lieut. P. C. Fauntleroy, assistant surgeon, United States Army, exhibited superior knowledge and skill in the preparation of the operating room, and as an operator. He showed skill, endurance, and pluck in the treatment of yellow fever before the arrival of the immunes, and until he was stricken with the disease.

W. E. Parker, acting assistant surgeon, United States Army, of New Orleans, who was connected with the operating staff, proved to be one of the best operators on the staff. His skill as a surgeon was already sufficiently established before his entry into the service to have deserved advancement beyond the grade which he so humbly accepted. His knowledge as a yellow fever expert proved of inestimable value to us during the epidemic. Although a supposed immune, he was taken ill with the disease, from which he was temporarily disabled. At a time when errors during convalescence were causing fatalities daily, he insisted upon resuming his duties when he was still too weak to stand the work. His services to the Government were certainly far beyond his reward.

H. C. Gavitt, chaplain, United States Army, displayed great capacity for handling men in the executive department during the days of July 1-4. It was largely to his efforts—whilst Captain Ireland was employed in the operating room—that the wounded were properly sheltered and fed. He buried the dead, and was constant in his efforts to comfort the living. I left him in Siboney August 15 going his daily rounds, though much reduced in strength, in the same way he had done in the early days of July. We owe the systematic arrangement of the dead in the cemetery and the proper inscription for identification to his faithful performance of duty.

Maj. Victor C. Vaughan, surgeon, United States Volunteers, professor of hygiene at the University of Michigan, Ann Arbor, did good work in the operating room, and later his suggestions and advice pertaining to sanitary matters were of great value. He continued on duty until July 12, when he was stricken with yellow fever.

Maj. C. B. Nancrede, surgeon, United States Volunteers, professor of surgery in the University of Michigan, Ann Arbor, was naturally a prominent figure in the operating room. His advice was sought on every side in cases requiring the opinion of an expert surgeon. He and Major Vaughan brought us our first cases from the engagement at Aguadores Bridge where they were subjected to a sharp fire from the Spanish batteries. Men of prominence like these, who would abandon their interest in civil life through patriotic motives to engage in the hazards of war without stint, deserve richly the thanks of their countrymen, and I am pleased to be able to call the attention of the War Department to their conduct in this instance.

Maj. John Guiteras, the yellow-fever expert of the Fifth Corps, rendered valuable service in recognizing the presence of yellow fever at the inception of the epidemic. It was largely upon his advice that measures were employed at the outset to restrict the spread of the disease.

REPORT OF MAJ. M. W. WOOD, CHIEF SURGEON, FIRST DIVISION, FIFTH ARMY CORPS.

[Dated June 30, 1898.]

I was detained on duty with the Sixteenth Infantry at West Tampa, Fla., until about noon of the 1st instant, to complete the papers and turning over. I then applied myself to the task of organizing and equipping, at Tampa Heights, a hospital for the division, in the face of many difficulties, some of which proved insurmountable.

An attempt was made to procure every article of proper equipment for the hospital, but in this we were much handicapped by the exhaustion of supplies by the previous equipment of the two hospitals at Tampa Heights and Port Tampa. All articles necessary that could be procured were procured, including ambulances and tentage. When we received orders to embark on the 7th we were ordered to leave behind all canvas but flies, all ambulances and mules, and all horses but one for each officer. We went aboard the steamship *Santiago*, at Port Tampa, on the 8th. The transport lay in the harbor until the afternoon of the 13th, when it proceeded 38 miles to Egmont Key. We passed Key West after midnight of the 15th and 16th, and arrived off Santiago de Cuba on the 20th. On the steamship *Santiago* were headquarters and staff, First Division, Fifth Corps; headquarters and staff, Third Brigade, First Division, Fifth Corps; the Ninth Infantry; one battalion Tenth Infantry; and the First Division hospital and staff. The trip was an uneventful one on smooth water, and but few were seasick. We were moved back and forth in front of Santiago, and on the 25th were landed in the surf in small boats at a point variously called Siboney, Juraguasito, or Altares. On the 27th we moved out to the site of a deserted mansion with absolutely no transportation but the private horses of the medical officers. The Hospital Corps detachment had become augmented to 87 privates. These carried 14 litters, and on them 500 extra first-aid packages, 1 field operating case, 2 pocket cases, the case of instruments from the new surgical chest No. 1, cooking utensils, 20 bottles of chloroform, 2,000 c. c. of ether, and assorted dressings for about 200 wounded, in addition to rations, and the bedding rolls, and 8 hospital tent flies for wounded. On arrival at this camp I sent 4 men and 2 horses back to Siboney for more supplies.

On the morning of the 28th I sent 20 men and 4 horses back to Siboney for supplies, and in the afternoon moved, with wet bedding, to a new wet camp, the only available site for a field hospital, toward the front. The moving was accomplished by making two trips, just before nightfall. On the morning of the 29th, having reconnoitered the ground, believing an engagement imminent, we again moved with our own things wetted to a new wet camp, the present site of the hospital, then in advance of all troops except outposts, 1,200 yards in rear of where many of the casualties occurred. It seemed almost an ideal camp, except for the daily rains and the polluted water supply; but we could not control the rains and could only attempt to purify the water. The site was a long oblong, separated from the main highway by a strip of heavy timber and dense underbrush from 30 to 50 feet wide, and in a bend in the creek (dignified by the name of Rio San Juan). On each side of the creek were large trees and an almost impenetrable thicket. Thus, with access by three ways cut out to the highway and the creek (in a bed of rock and boulders) for a water supply, our site was tolerably well protected from small-arms fire by the trees about it. The site was within rifle range, but we escaped attention. For water supply for surgical purposes I had a shallow

well dug in the river bed as far as practicable from the flowing water, thus securing a filtration through several feet of sand of the water, which had been polluted by the ablation, laundry work, and excreta of the 15,000 and more of men and hundreds of animals encamped on the stream above our site. This was boiled for twenty to thirty minutes and then filtered through a Berkefeld filter and kept in closed containers fairly sterile.

Of the performance of their duties by the officers and men of the hospital little need be said. Such uncomplaining performance of such services by northern men under the blazing tropical sun, such genuine devotion to the cause in which they were engaged, such indefatigable following by the men of the example set by the officers of the staff, can be summed up by but a single word—heroism. Where each and every one did far more than his duty, where the efficiency of each was limited only by the utmost straining of his abilities, no particularization can be made for the officers more than to say that each proved "the right man in the right place," and strove with unanimity each to emulate the others. Many of the men seemed to develop new faculties each day. Among the more valuable of these were Privates R. A. Wood, John E. Collins, B. F. Mayer, J. F. Fairman, and Harry C. Spears, all of whom richly deserve special commendation. Hospital Steward Denning, the only steward in the whole First Division, was invaluable.

It is much to be regretted that the actual organization and equipment of personnel is so vastly different from the theoretical paper personnel contemplated. It is also deplorable that a civilized army of a wealthy nation should be absolutely without transportation on the eve of what may prove a severe engagement, and I repeat that no transportation of any kind, save the single horses of medical officers, was furnished for this hospital from its landing until after the establishment of the hospital on this site on the 29th instant, the third day out. Supinely sitting in the mud awaiting transportation would not have resulted in the establishment of this which, as next month's report will show, was the only hospital at the front for the reception of wounded. The hearty assistance and encouragement of Lieutenant-Colonel Pope, chief surgeon, was a considerable stimulus to each to try to outdo the others.

REPORT OF MAJ. M. W. WOOD, CHIEF SURGEON FIRST DIVISION, FIFTH ARMY CORPS.

[Dated near Santiago, Cuba, July 31, 1898.]

My last report covered the establishment of the division hospital as near the enemy (1,200 yards) as it could be prudently located, in front of all our troops but outposts. In this location we received and cared for the wounded from the entire army who needed attention beyond the first-aid dressings applied on the line and at the dressing stations.

From the dressing stations the wounded came to us. The few walking cases not needing redressing, who were able and desirous to walk as far as Siboney, on the way homeward, were allowed to go on, and as rapidly as this could be done the sitting cases and the slighter lying cases were forwarded in army wagons and in the ambulances. Many of the more seriously wounded were retained as long as practicable, until the yellow fever all about us prompted me to take the risk of their removal.

The accompanying report by Major Johnson explains the want of record of many of the cases, and the meager details given of others. Not needed at the front because of the presence there of other chief surgeons who had no hospitals, and who had promised to attend to my duties there, I took upon myself the entire duties of the hospital outside the operating tables; attended to the unloading of the wounded who were delivered on litters, in army wagons, or in the only three ambulances there were with the army; attended to the orderly reception of these, that they might be relieved in proper sequence when it was not necessary to depart from this; to the assignments of patients to the tables when special assignments were considered necessary; to taking the records of the first 150 cases in such manner as to be most valuable for the Record and Pension Office, and until it became so dark that I could not see the pencil marks which I had made; to the disposition and arrangement of the wounded after they left the tables; and exercised a general supervision.

When the record taking was interrupted at about 7 p. m., on the 1st, there were probably 80 wounded ahead of us, and not until 5 a. m. did we catch up with the work, for many had been brought in in the moonlight. Then some of us snatched three hours sleep, until wounded began again to arrive by daylight. From that time we worked again until 8.30 a. m., until we had again caught up.

There was no one who knew how to do the work who could be spared to keep records, and we could only hope that in the hospitals which never joined the army this work might be done. As soon as Major Johnson could do so, he recommenced the record keeping, and was able to get some data in regard to some of the number who passed through our hands. The poor wounded were in a pitiable condition. Some, absolutely without clothing save the dressings on their severe wounds, had little but the wet ground for a bed and the sky for cover throughout that first terrible night; but we did the best we could in utilizing every scrap of canvas or bedding, and before very long could shelter, bed, and cover them. They were hungry, nearly famished, and with parched throats. What we could have done to relieve this but for the providential arrival of Miss Clara Barton and her little band of six, who proved ministering angels, I am glad never to know. She arrived in an army wagon, and in a few minutes had food in preparation and was distributing clothing. The first day they distributed 20 gallons of gruel and 10 gallons of malted milk. Next day, 10 gallons of gruel, 10 of malted milk, and 15 of rice. To this they added later 5 gallons of cocoa and 10 of apple sauce, with pineapples (native), stewed and raw. During the entire period until her departure on the 15th she continued to furnish quantities of supplies, not only to the wounded, but to the sick of the regiments at the front and to the offshoots of our hospital, and left a quantity to be subsequently distributed under my direction. Later, after the harbor of Santiago was opened, she distributed large quantities of timely supplies for our numerous sick.

A cask of captured Spanish wine, "Vino de Navarro," was turned over to me and proved of much service. Coffee was prepared in large quantities, and large quantities of a sort of soup were prepared from the canned roast beef, canned corn beef, canned beans, canned tomatoes, beef extract, and hard bread, which was quite palatable and eagerly taken. With the removal of the last of the wounded, because of yellow fever, their history with us was closed. Their uncomplaining acceptance of the aid which we were able to offer amid such surroundings was remarkable.

From our hospital there were formed as offshoots the general reception hospital for sick and the yellow-fever hospital of Acting Asst. Surg. H. P. Jones, both subsequently removed. The number of sick increased enormously until, on the 28th, it reached a maximum of 1,346, or 20 per cent of the total present in the division, and even then the Twenty-fourth Infantry, with its large sick list, was absent.

It is to me a source of unmixed pride and gratification that the entire personnel, so far as I know, of the medical department of the division, acquitted themselves so creditably. Their uncomplaining endurance of privations and exposure, while their abilities were taxed to the utmost limit, and the large-heartedness with which they cheerfully toiled on through sleepless nights, and the zeal with which they passed to the next sufferer, not only entitle them to a star position in the annals of the Department, but won them a secure place in the hearts of their combatant brethren of this division, which did the hardest fighting, suffered the heaviest losses in killed and wounded, and was "ever ready."

While heartily approving the well-deserved personal commendations in the inclosed reports, I desire, in conclusion, to commend especially to the attention of the Surgeon-General the following-named officers: Maj. W. B. Banister, by the manner in which he has performed his very arduous duties under peculiarly trying circumstances of physical debility and by the intelligent aid rendered the chief surgeon, has shown his fitness for the position of chief surgeon of a division. Capt. H. C. Fisher, for the high standard of efficiency he has maintained. Though he has remained with his regiment, his exceedingly valuable services have often come to the notice of the chief surgeon. Maj. W. D. Bell, surgeon Seventy-first New York Volunteers, richly merits for himself the words he has so fitly spoken of others for gallantry, and also for his extreme devotion to duty. Lieut. T. J. Kirkpatrick, who in every position in which he was placed has left the impression with all, "Would that there were more like him." Quietly, modestly, and gently he worked on the wounded with amazing rapidity, and seemed not to know fatigue. Lieut. G. C. M. Godfrey has richly won his "spurs," which I hope may be given him, with an additional volunteer promotion. A high compliment was paid him for his work under fire by a line officer, who said: "He's a darned fool; he doesn't seem to know what danger is." Acting Asst. Surg. Hamilton P. Jones would prove an excellent surgeon of volunteers, and is thoroughly fitted and trained for the position which he merits. Acting Asst. Surg. T. R. Marshall has shown that he is also fitted for and worthy of the position of surgeon of volunteers.

I know no words of blame or censure due to any of those who bore with us the heat and burden of the day.

REPORT OF MAJ. R. W. JOHNSON, BRIGADE SURGEON, UNITED STATES VOLUNTEERS, ON THE WORK OF THE FIRST DIVISION HOSPITAL, FIFTH ARMY CORPS, AT SANTIAGO, CUBA.

FIRST DIVISION HOSPITAL No 1,
Camp near Santiago, Cuba.

Maj. M. W. WOOD, U. S. A.,

Surgeon, First Division Hospital No. 1, Fifth Army Corps.

SIR: I have the honor to submit the following report of wounded in the battles of the 1st, 2d, 8d, and 10th of the present month:

I am well aware that the list is defective, and does not include the names of a great many who were admitted to this division hospital for treatment, but this was unavoidable, owing to the limited number of medical officers on duty, whose services were in constant requisition, caring for the wounded for three days and nights immediately following the battles.

Accurate information of the names, regiments, and locality of wounds was obtained from the time the first patient was admitted, July 1, until dark, when, owing to the large number of wounded coming from the front, and also to the fact that a number of these had been awaiting attention for at least three hours, it was decided to omit the histories; so none were accordingly taken for the remainder of the night. It was supposed that ample opportunity would be afforded the following day to enter in the records any whose names had been omitted owing to lack of time during the night, but the morning of the 2d found us with wounded coming in by the score, and the services of a medical officer could not be spared for that purpose. As a consequence many were simply dressed and forwarded to Siboney with no record of their names or wounds having been obtained.

A number of severely wounded from the first day's battle died during the evening or early the following morning after their admission, with absolutely no means of identification. It is with sincere regret that this statement must be made, but the immediate care of the wounded demanded the services of each and every member of the staff, including Hospital Steward Denning, Acting Hospital Steward McGuire, and all other privates of the Hospital Corps.

This matter of classification could have been properly attended to had there been a large number of medical officers on duty with the hospital, but being the only hospital in the field, the wounded of all three divisions were carried to us for treatment as soon as transportation facilities were available. Human endurance had its limit, and it was simply impossible to give to these matters the attention they deserved, although the staff worked nobly and uncomplainingly for nearly three days and nights with but little rest. I will say that during the night of July 1, Major Bell, surgeon of the Seventy-first New York Volunteers; Acting Asst. Surg. Thomas R. Marshall; and First Lieutenant and Assistant Surgeon Kirkpatrick, United States Army; and on the 2d and 3d Majors Havard and McCreery, surgeons, United States Army; Captain and Assistant Surgeon Stafford, Seventy-first New York Volunteers; and First Lieutenant and Assistant Surgeon Gates, of the Second Massachusetts, were detached from their commands and reported to the hospital for duty. All rendered timely and efficient service.

The fact that a number of soldiers died unknown, through no fault of ours, emphasizes the necessity of adopting some means of identification in men who are so badly wounded as to be unable to give any account of themselves. The diagnosis tags issued by the Surgeon-General were not used to any great extent, as a great many wounded were brought in without them. In some cases the writing was obliterated by the rain, or so indistinct as to render them of no assistance to us. As a result of my experience in this matter, I strongly urge the adoption of a metal tag to be worn around the neck, giving the name, rank, and regiment, and such other information as would be valuable in case of the death of a soldier.

There were only a few operations of any note; the most important being three laparotomies performed in apparently hopeless cases for perforating gunshot wounds of the abdomen, but all proved fatal. In this connection the question of the advisability of such major operations in the field is well worth careful consideration. A number of men recovered promptly who were wounded in the abdomen by bullets, which could not in their course possibly have escaped perforating the intestines. If to the natural shock attendant upon such injuries there be the additional one of opening the abdominal cavity, in the great majority of cases the result is sure to be unfavorable. That men can under certain conditions recover after the receipt of an abdominal wound in which the intestines are unquestionably injured, is well known; this has recently been well exemplified. I do not wish to be quoted as an advocate of nonoperative interference in such cases, as I consider surgical intervention a most necessary procedure when all the

surroundings are favorable; but in the field with our limited means of performing aseptic surgery, our inadequate facilities for after treatment, and the enfeebled and often infected condition these men are in after lying possibly some hours on the field of battle, and then removed several miles to the hospital over rough roads in army wagons and ambulances, make me confess to a liking for conservative surgery, which in such cases amounts to practical noninterference, so far as operative measures are concerned, as affording the only chance for the ultimate recovery of the patient.

Two amputations of the thigh were performed; one of the upper third for extensive crushing injury with great loss of tissue, and the other in the lower third for compound fracture, with injury to the main arterial supply. The former case was fatal in a few hours. The latter was performed several days after the receipt of the wound, on account of gangrene of the leg and foot.

An amputation at the upper third of the leg for a compound comminuted fracture of the tibia, with extensive loss of tissue, due to the explosion of a shell, was also performed successfully.

Ligation of the right lingual artery for secondary hemorrhage following gunshot injury resulted fatally, owing to the large amount of blood lost prior to the operation, and the consequent weakened condition of the patient.

A comparatively large number of compound fractures of the femur were sent to the hospital among the first, which soon exhausted our supply of splint material, but an excellent substitute was afforded by the woody part of the old growth of leaf of the palm tree, which when moistened could be accurately molded to the limb, in which position it remained after drying.

This made a very satisfactory splint, and while affording suitable strength was very light, and caused no pain or other inconvenience to the patient. A few Hodgen's splints were extemporized, but were discarded for those previously mentioned when the patients were transferred to Siboney. A more extensive experience with this splint will, I am sure, cause its adoption in many cases where neither Hodgen's nor Smith's anterior are available, and I accordingly recommend that a suitable supply be sent to the States for trial, as I believe it will be an excellent substitute for the heavy and cumbersome plaster-of-paris dressing now in such universal use.

The wounds inflicted upon our men by the small caliber Mauser bullets were much less severe than I had expected from the literature read on the subject. I certainly consider it a humane bullet in every sense of the term. There were a number of gunshot wounds of the skull where the bullet simply perforated the bones without any comminution or apparent splintering. In the case of Sergeant C—— a bullet entered the right parietal bone near its junction with the frontal and emerged at the posterior border of that bone, lacerating the brain substance. The first two days after admission to this hospital he was partially unconscious, but on the third day became rational and began to improve. When transferred to Siboney a few days later his condition was better, and beyond some blunting of the mental faculties, with peevishness and irritability of temper, gave fair prospects of ultimate recovery.

Private B—— received a perforating gunshot wound of the neck, the ball entering the right sterno-mastoid muscle at its middle, passing through the pharynx in its course, and emerging at the anterior border of the left sterno-mastoid at the same level. This patient was scarcely confined to bed, and up to the time of his transfer to Siboney, experienced very little difficulty from the injury. Perforating wounds of the chest, abdomen, and every other portion of the body healed kindly by first intention when not previously infected. Occasionally a ball seemed to pass directly through a bone without producing a fracture, but in the majority of cases—noticeably of the femur—a solution of continuity resulted. From what I have seen of the injuries inflicted by the Krag-Jorgensen rifle upon Spanish prisoners falling into our hands after the receipt of wounds, I have come to the conclusion that it is a much more effective weapon and produces wounds of far greater gravity than the Mauser.

Boiled and filtered water only was used in every case for cleansing and irrigation, and care taken at all times to secure as complete asepsis as possible. More efficient and satisfactory results with much greater comfort to our patients would have resulted had we been allowed to bring with us from Tampa the hospital equipment we had collected after so much time and labor. To be required to leave all our ambulances, cots, hospital tents, and depend on flies only in which to shelter our wounded men lying on the wet ground, was not a very encouraging outlook, but we determined to accomplish all we could under the circumstances. Our facilities were totally inadequate even for the First Division hospital, and owing to the absence from the field of the Second and Third Division hospitals,

which necessitated our caring for their wounded, work was thrown upon our hands for which we were entirely unprepared, and which taxed our resources to the utmost.

I desire to make especial mention of the strict attention to duty and valuable services rendered by the members of the hospital staff, Asst. Surg. G. C. M. Godfrey, United States Army; Acting Asst. Surg. H. P. Jones, United States Army, and Acting Asst. Surg. F. J. Combe, United States Army.

In conclusion I desire to express to you my appreciation of your valuable advice and counsel, freely rendered at all times, which was of great assistance to me in the management of the hospital in its various departments.

REPORT OF LIEUT. GUY C. M. GODFREY, ASSISTANT SURGEON, UNITED STATES ARMY, IN COMMAND OF THE AMBULANCE COMPANY, FIRST DIVISION, FIFTH ARMY CORPS.

[Dated July 28, 1898.]

As commanding officer of the Hospital Corps company of the First Division, Fifth Army Corps, I have the honor to submit the following report:

This company was organized at Tampa, Fla., on June 5, 1898, just two days previous to the departure of the troops of the First Division for the transports at Port Tampa, Fla. On the day of organization the strength of the company was 18 privates. No noncommissioned officer was assigned to it until June 7, 1898, when Acting Hospital Steward McGuire reported for duty.

When the order came to move the men of the company performed the work necessary thereto, and the enthusiasm and esprit de corps with which they labored added greatly to the celerity and facility with which the task was accomplished. The personnel and supplies of the division hospital, as well as the hospital company, was placed on board the transport *Santiago*, and arrived off the coast of Cuba, near Santiago, on June 20, 1898. The day before landing all of the material was brought up from the hold by the men of the company and stored on the main deck of the ship near the forward starboard port. This was done by direction of Maj. M. W. Wood, chief surgeon of this division, and proved a wise and efficient measure.

We landed on June 25 at Siboney, Cuba, and pitched camp on the beach. On this day 13 of the privates of the hospital corps of the Seventy-first New York Volunteers joined the company. During the night of June 25 Acting Hospital Steward McGuire and five of the men worked all night unloading the material for the hospital and storing it upon the beach under canvas. This was done by using small boats drawn by steam launches, and, owing to the high swell, it was at times quite dangerous. On several occasions the men narrowly missed injury from falling boxes.

On June 25 the men were given a short drill to perfect organization. Hurried preparations were made for a forward movement, and as absolutely no transportation could be obtained from the quartermaster's department, these preparations consisted principally in selecting such necessary dressings and drugs as the men could carry on their backs and litters. On the 27th the First Division moved forward, and the hospital company followed in rear of the Third Brigade, taking the ridge road toward Sevilla. Owing to the possibility of an immediate skirmish or battle none of the medical officers rode their horses, but made pack mules of them and carried as large a number of dressings, etc., as they could. The division camped in column of brigades, and the hospital company and division hospital pitched camp near the headquarters of the division commander. On the following morning 20 men and the steward and 2 medical officers returned to Siboney, and brought up 4 litters and as many medical supplies as possible, returning about 2 o'clock p. m. After a soaking rain the company broke camp and was ordered to move forward 2 miles. This they did, marching over a rocky yet muddy road, carrying the hospital supplies with them. They pitched their shelter tents on the soaking ground, while the officers, who had no shelter, slept in the open air, exposed to dampness and poisoning. On June 29 the company moved forward a quarter of a mile farther to a beautiful spot, with the Aguadores River on one side and the Siboney road on the other. Here on the 29th the division hospital was established, and here it remained all through the terrible carnage that followed. On this day six wagon loads of our supplies were brought up from the beach at Siboney, and tent flies were pitched and everything arranged for the coming battle. On the 30th of June the work of establishing the division hospital continued, and more of our supplies were brought from Siboney. * * *

At this time the wounded were coming back in a constant stream, and such as needed stimulation or dressing were at once attended to by the roadside. Many of them returned alone, others walked supported by the arm of some comrade, while the more seriously wounded were borne upon litters of various kinds. A few of those who returned had not received medical attention, but the majority of them were dressed with first-aid packages by the regimental surgeons and their hospital corps men.

At about 1 p. m. Maj. Valery Havard, chief surgeon of the Cavalry Division, established an ambulance station on the east bank of the Aguadores near El Poso. At this station many dressings were readjusted and a few patients were dressed for the first time. Stimulants, medicines, and dressings constituted the stock of this station, which was about 1 mile in advance of the First Division hospital. No point farther to the front was safe from the enemy's fire. The ambulances were worked constantly, and, considering their number, did remarkably well. Late in the afternoon ambulances were taken forward to near the farthest crossing of the Aguadores, but it was rather dangerous at all times, as the enemy kept the San Juan road enfiladed all day long. It was also very dangerous on account of Spanish guerrillas, who were located in trees overlooking the road. Several men carrying wounded were shot, and indeed in a few cases the patients themselves were hit.

At 11 a. m. a dressing station was established by Captain Newgarden at the farthest point where the San Juan road crossed the Aguadores. At this place there was a vertical bank about 4 feet high, beneath which there was a gravel beach. Here a certain amount of shelter was obtained, but bullets frequently cut through the bushes or splashed up the water in the creek. At one time it was enfiladed by Spanish sharpshooters in trees up the creek. Several horses were killed here, but no patients, surgeons, or attendants were injured that afternoon. It was at this place on the following morning that Dr. Danforth was killed. Late in the afternoon several escort wagons, having carried ammunition to the front, were turned over to the writer by Lieut. J. D. Miley, General Shafter's aid-de-camp. These were taken to this station and filled with the wounded, who were transported to the First Division hospital. Empty army wagons that could be found were used for this purpose, and the wounded kept coming into the hospital all night.

On the following morning an ambulance and two wagons were taken to the dressing station just described, and the wounded brought in, among them Acting Assistant Surgeon Danforth, who was shot through the head. Maj. S. Q. Robinson had assumed command of this station on the previous afternoon, but at this time he, with Capt. W. D. McCaw, rejoined their regiments, and left the station in charge of Capt. G. J. Newgarden. Maj. V. Havard arrived later, and established an ambulance station at this point, which was then comparatively safe. It was customary during the battle for the writer to send litters and dressings to the front in the empty ambulances. During and after the battle the men of the hospital corps company did much of the work in the First Division hospital. They assisted in operations, helped in applying dressings, made soup and coffee, carried patients to and from the operating tables, and acted as nurses to the wounded. With but few exceptions they worked all day, all night, all the following day, and most of the next night. They were assisted by members of the bands of the regiments and by some of the hospital-corps men of the regiments.

During the battle the first-aid work was very effective, and was done mostly by regimental surgeons and their hospital squads. Many dressings were applied by line officers and soldiers on the firing line, and in some instances by the wounded men themselves. Maj. S. Q. Robinson, who commanded the Aguadores dressing station on July 1, says that only about 10 patients came there who had not been dressed by first-aid packets. Words can hardly express the appreciation which the officers and men of the line have for the first-aid packets. They realize now as never before the value and importance of instruction in first-aid work. The very small number of suppurating wounds can readily be accounted for by the prompt application of these dressings.

REPORT OF CAPT. EDWARD L. MUNSON, ASSISTANT SURGEON, UNITED STATES ARMY, COMMANDING THE RESERVE AMBULANCE COMPANY, FIFTH ARMY CORPS, AT SANTIAGO, CUBA.

[Dated July 29, 1898.]

In view of the recent charges made affecting the efficiency of the army medical department at Santiago, and especially with reference to the conditions prevailing on the hospital transports sent north with wounded, I have the honor to submit the following facts, believing that my position as adjutant to the chief

surgeon Fifth Corps and as the officer in charge of the outfitting of the hospital transports *Iroquois*, *Cherokee*, and *Breakwater* may possibly give value to such report:

Drugs, medicines, dressings, instruments, hospital tentage, and supplies were loaded on the transports at Tampa in quantities sufficient to meet the needs of the Santiago expedition. These supplies were divided up on the various vessels, each organization having its own equipment. While the bulk of the supplies was with the organized hospitals, the regimental equipment was largely in excess of its needs, and was intended to be called in to supplement, if necessary, the equipment of these hospitals.

The landing on Cuban soil was made as rapidly as possible, each organization accompanied by the medical attendants assigned to it, and troops were pushed forward with no other equipment and supplies than could be carried by the soldiers. Having no means of transportation for even their field chests, the regimental medical officers had absolutely no resources at their command except such as were provided by the orderly and hospital corps pouches and the first-aid packets carried by the soldiers.

Having once left their ships, the latter were promptly ordered out of the small bays at Siboney and Daiquiri to permit the unloading of other vessels. These partially unloaded ships, in obedience to their orders, then proceeded to sea from 5 to 15 miles, where they remained, hove to, indefinitely. Such orders were given the transports carrying the reserve and the first divisional hospitals.

The vessel carrying the reserve hospital, in obedience to its orders, proceeded to join the naval blockading squadron off Morro Castle, where it remained five days and nights; the other transport disappearing, if I was correctly informed, for an entire week, during which time the fight at Guasimas had occurred, and large numbers of sick and wounded were requiring treatment. In the meantime the report of the conditions prevailing on shore was made to the chief surgeon, who promptly laid the case before the commanding general, requesting that a launch be placed under the control of the medical department for the collection of medical supplies from the various transports. It was also requested that a pack train be organized, in the proportion of one pack mule to each regiment, to transport supplies—especially the field chests—to the front for proper distribution, and the writer was named by the chief surgeon as available for the performance of these duties.

The exigencies of the situation did not apparently appeal to the commanding general, and for two days the medical department was unable to get transportation of any kind to the other ships or to the shore, although there were a large number of naval launches and boats employed on various other duties.

On the third day, by order of the adjutant-general, one rowboat was turned over to the medical department for the purposes above named, and at the same time an order was issued for land transportation to carry medical supplies to the front, "not to exceed one 6-mule team."

On getting into this boat with supplies from the headquarters transport I was directed by sundry staff officers to take them on various errands. On my refusal to recognize their authority the commanding general, who had appeared on the scene, personally revoked the previous order and directed, after the landing of the supplies already in the boat, that it should return without delay.

Presenting the order for land transportation to the quartermaster on shore, I was informed that only pack mules had as yet been landed; that neither wagons nor harness had been brought ashore, and, finally, that the road was impassable for wagons.

After this boat had been taken away the chief surgeon was without any means of communication with the medical officers on shore or still on transports, of finding out their wants, or of remedying the many already known to him.

This condition of things remained until after the fight at Las Guasimas, at which time there were absolutely no dressings, hospital tentage, or supplies of any kind on shore within the reach of the surgeons already landed.

The news of the Guasimas fight being reported to the chief surgeon, he was finally able to get on board the *Olivette* and send her to Siboney, where she received the wounded.

Within the following day or so the transports carrying the reserve and first divisional hospitals were found and unloaded of their hospital contents, the latter hospital finally obtaining limited transportation to the front for its supplies.

After a couple of days' duty on board the *Olivette* I was directed to put the *Iroquois* in condition to receive patients and to take the full capacity of the ship on board. While doing this I was able to set ashore considerable hospital tentage and supplies found aboard of her, and having control of her boats I was able to visit other transports in the harbor and land medical supplies from them.

While subsequently outfitting the *Cherokee* and *Breakwater* this work was continued as well as opportunity and limited facilities permitted, getting supplies from perhaps a third of the transports composing the fleet. Outside of this it is believed that no other regimental medical property was ever unloaded up to the time of my departure with wounded on July 10.

Appealing on several occasions for the use of a lighter or small steamer to collect and land medical supplies, I was informed by the quartermaster's department that they could render no assistance in that way, and the medical department was compelled to rely entirely upon its own energies and improvise its own transportation.

I feel justified in saying that at the time of my departure large quantities of medical supplies urgently needed on shore still remained on transports, a number of which were under orders to return to the United States. Had the Medical Department carried along double the amount of supplies it is difficult to see how, with the totally inadequate land and water transportation provided by the Quartermaster's Department, the lamentable conditions on shore could have been in any way improved.

The outfitting of transports for the reception of sick and wounded is a duty demanding thought and experience, and should never be intrusted to anyone but a regular medical officer. It includes the proper policing of the portions of the ship to be used by the wounded; the removal of bunks and partitions to give space and air; the utilization of the ship's blankets, door mats, rugs, and carpets to render the bunks more comfortable; the securing of extra supplies, such as canned soups and fruits, lime juice and oatmeal; the establishment of a mess and laundry, and the assignment of convalescents to specific light duties which materially relieve the overworked hospital corps.

Usually it is necessary to overcome passive resistance and opposition on the part of the crews and a tendency on the part of the captains to disregard or modify orders. In several instances in my own experience this action of the crew amounted almost to mutiny, and was only to be dealt with by threats, a show of force, and in one instance by the use of the irons.

While executive officer at the general hospital, Fort Monroe, I learned officially that the captain of the steamship *Seneca* positively refused to obey the orders emanating from your office, given to him by the contract surgeon in charge, to proceed to New York; he remaining nearly an additional day at Hampton Roads with sick and wounded, asserting that he would obey no orders given by the Medical Department.

A similar experience of my own at Daiquiri, which had to be settled by force, emphasizes the fact that no one should be placed in charge of such a ship who is not accustomed to command men and enforce obedience.

With regard to the Red Cross Society it would seem as if the lofty purposes of this organization were, on the Santiago expedition, subverted to individual interests. While at Tampa the Red Cross ship *State of Texas* was formally placed under the control of the chief surgeon, Fifth Corps, by Dr. Egan, the representative of the society, he acting under telegraphic instructions to that effect.

Colonel Pope accepted this offer and directed that the *State of Texas* accompany the expedition of General Shafter to its destination. Although this order was fully understood by Dr. Egan the *State of Texas* did not accompany the expedition, nor did it arrive at Siboney until the forces had been landed, a battle fought, and our hospital established and in working order.

The first offers of aid made by this society dealt largely in generalities and manifested reluctance to subordinate the organization to the Medical Department.

Too much praise can not be given to the individual efforts of Dr. Lesser and the Red Cross nurses. Their work was untiring and unselfish, and the assistance rendered by them was of great value.

In conclusion it is desired to emphasize the fact that the lamentable conditions prevailing in the army before Santiago were due, first, to the military necessity which threw troops on shore, and away from the possibility of supply, without medicines, instruments, dressings, or hospital stores of any kind; second, to the lack of foresight on the part of the Quartermaster's Department in sending out such an expedition without properly anticipating its needs as regards temporary wharfage, lighters, tugs, and despatch boats, and without an adequate number of stevedores to handle property. The quartermasters personally accompanying this expedition were entirely unable to properly carry the severe burdens imposed on them in spite of the personal energy displayed by them in making the most of the limited facilities and resources at their command.

REPORT OF CAPT. GEORGE J. NEWGARDEN, ASSISTANT SURGEON, UNITED STATES ARMY, OF HIS SERVICES AT SANTIAGO, CUBA, WITH THE THIRD UNITED STATES CAVALRY.

We arrived at Daiquiri, Cuba, on June 22 and went into camp on the side of a hill about 1 mile from the landing place. I was unable to take any supplies along, not having any transportation for the same. I succeeded in obtaining an emergency case from Major McCreery while in camp. A mackintosh and a woolen blanket constituted my protection from the elements. The brigade surgeon offered me for use with the regiment a medical and a surgical pannier, but no transportation having been provided for them I was obliged to refuse them with regret. On June 25 I made personal and thorough effort to secure transportation and supplies, but without success. I applied personally to the major-general commanding on board the *Seguranca* and requested a mule for a mount, but was refused. Later I succeeded in getting a Government horse from the brigade surgeon, which I managed to get equipped with a teamsters saddle and mule bridle after considerable effort. Before leaving this camp a box of first-aid packets was turned over to me and one was issued to every man and officer in the regiment. We proceeded as far as El Poso hill, where hostilities began at daylight on July 1. Captain Grimes's Battery, which was planted here, opened fire on the enemy. Reply was received in the form of a steady, well-aimed shrapnel fire, which did considerable injury to the troops of the cavalry division drawn up in column in the road below the hill. It was here that I had my first injury to dress; a bandman of the Third Cavalry, perforating shrapnel wound of the buttock.

We marched to the San Juan River, after crossing which the command was formed for action, and it was here the actual conflict began. I observed that this point was an excellent place for a first-aid dressing station, as the bank was about 8 feet high, and there was a short or gravelly shelf running from it to the creek, where the staff officers had left their horses. I had these removed, and in conjunction with Dr. Menocal, contract surgeon on duty with the Sixth Cavalry, decided to establish here the dressing station for the Third and Sixth regiments of cavalry. By the aid of a few men with shovels I had this shelf increased in area by filling in the creek along its sides. By the time this was done the battle commenced, just over the bank. This, which was the nearest dressing station to the firing line, became, by virtue of its location, a general collecting, first aid, and ambulance station for the whole line of fire, as the only road ran right by it and it was at the regular ford of the creek on this road. The wounded came in so fast that our energies and the capacity of the station were frequently strained to their utmost. Dr. Menocal and myself cared for all comers from whatever regiments, dressing their wounds and making them comfortable, having covered the earth with leaves, and spreading the ponchos of the wounded over these. I endeavored to keep records of the wounded and the nature of their injuries, but it was absolutely impossible for the time being. I did manage, however, to keep track of the injured of my regiment fairly well, which records I completed later, after reaching the regiment on the cessation of hostilities. Improvised litters were made of boughs and shelter halves. Men who were able to walk were allowed to proceed to the division hospital on foot, if their injuries were not grave. Those more severely injured and able to bear it were sent back on litters with bearers.

Pack wagons which passed toward the front with ammunition and commissaries were pressed into service on their return, and such wounded as could endure the rough ride were carried to the rear in this manner. Three ambulances only were available later, and in these the worst cases were transported. As it was, the capacity of the station was strained severely at all times during July 1, as the wounded were steadily pouring in from all regiments. Later in the day Maj. S. Q. Robinson arrived at the station and assumed charge until night, when the firing ceased. During the night he proceeded to the front and presumably joined his command. Captain McCaw also reached the station about the same time with Major Robinson, and the four of us had all we could attend to in looking after the wounded. At no time was this station safe, as the bullets were coming in from all directions continually, cutting the trees all around us, and occasionally so thick that it looked like rain in the creek. Shrapnel shells were also bursting disagreeably close at times, as the enemy had the road enfiladed. The wounded were made quite safe under the bank, but it was very dangerous in the open, where we had to go and come continually, looking after the welfare of the injured and preventing blockade in the station by incoming troops on the way to the front. Captain McCaw remained at the station until next day, when he proceeded to rejoin his regiment, the Sixth Infantry, returning toward evening, as there was little to do

forward, all the wounded having reached my station. During his absence on the second day the division surgeon, Maj. V. Havard, rode up to the station and ordered Dr. Menocal to join his regiment, commanding me to remain in charge of the station until relieved by orders from him. It appears that this locality, though dangerous in the extreme, so much so that it gained the name of "Bloody Angle" or "Bloody Bend," was of great value as a dressing and ambulance station while the conflict lasted. Many men were wounded at and about this station. Dr. Danforth, contract surgeon, with the Ninth Cavalry, received a mortal wound, perforating the brain. Six animals were killed on the creek bank, and one having dropped in the creek I made efforts to procure a detail to have the carcass dragged out and buried, but without success. Eventually I had to employ an ambulance team to do the work, and also Hospital Corps men to bury it and the others, as they were rapidly becoming offensive.

Chaplain Swift of the Thirteenth Infantry did excellent duty here, quieting the fears of the wounded, burying the dead, and superintending the foraging for food, in which he was very successful, securing a camp kettle and plenty of coffee, sugar, bacon, hard-tack, and canned roast beef. Coffee was kept continually boiling, and the wounded revived by the same, as well as food for those who wished to eat. Even smoking tobacco was plentiful, and it was a great boon to the injured who smoked. The sufferings of the severely wounded were quieted by hypodermics of morphine; and, on the whole, there was nothing further desired except transportation, and that we were sadly in need of. Several of the fatally injured were retained at this station over night, and made as comfortable as possible on litters with plenty of blankets, of which latter there was an abundance, as many of the volunteers had discarded them along the road. A few very severely injured who could not stand transportation in pack wagons were also retained by their own choice as well as ours, and sent safely to the rear in ambulances in the morning. On the 5th of July I received orders from Maj. V. Havard that I should abandon this station, as it was no longer needed, and was at all times dangerous, and rejoin my regiment. I immediately obeyed the order, and with Dr. Harris and Dr. Menocal started a brigade hospital behind the San Juan Hill for the three regiments, Dr. Harris being brigade surgeon in command. As the men were now succumbing to the prevailing fever, we had plenty of work on our hands. In the meantime Maj. V. Havard, division surgeon, established a supply station close to this hospital, where we replenished our medicines as needed, also receiving and dispensing such articles of sick diet as beef extract, malted milk, and canned soups and broths, etc. I continued at my duties with the regiment until I myself was stricken with a severe attack of fever on July 16, and on the 18th was sent to the division hospital for treatment.

REPORT OF CAPT. CHARLES F. KIEFFER, SURGEON IN CHARGE, ARTILLERY
BRIGADE, FIFTH ARMY CORPS.

[Dated September 22, 1898.]

I have the honor to submit the following report of the health and sanitary condition of the Light Artillery Brigade during the operations about Santiago and the voyage to Montauk on transport. This command was made up of six batteries. Of these, four batteries left on the first expedition and landed June 23, and two batteries on the second expedition, landing on July 9. The batteries were all in widely-separated positions in the trenches and were massed near Caney, immediately after the formal surrender. This camp was maintained until the departure from Santiago in different transports, between August 19 and August 23. The average strength of the command was 550 enlisted, 25 officers. There were three medical officers with the command: Capt. Charles F. Kieffer, Lieut. William W. Quinton, and Lieut. William H. Wilson, assistant surgeons United States Army. There were also four acting hospital stewards and an average of 8 Hospital Corps privates.

Immediately after the surrender the organization of a brigade field hospital was begun, and in a few days I had excellent provision for 50 sick, including cots, blankets, supplies, and foods. This hospital held all our seriously sick men, and the others were made as comfortable as possible in their battery camps.

The daily sick report averaged 120, and this proportion of the troops was more or less constantly maintained during the month following the fall of the city. These figures do not represent the total unfit for duty, because many of the men were so enfeebled that if more work than the minimum to maintain a clean camp had been required, they would have been unable to do it. The great majority of

the sickness was a thermic fever and various types of malarial infection. These fevers at different times attacked at least 95 per cent of the command—75 per cent had two attacks and about 40 per cent had three attacks to the time of leaving the island. Careful notes were made, and in a future report I hope to present some of the technical aspects of these cases. There were also 10 cases of either typhoid infection or severe remittents with typhoid symptoms. In the absence of microscopical evidence a differential diagnosis was impossible. I incline, however, to the belief that the cases were of malarial type. We had very few cases of dysentery, and the type was mild and easily controlled. Two cases of measles developed, necessitating a quarantine. Ten men were transferred to hospital ship by order of the chief surgeon of the corps, and when the command left camp 10 more were transferred to general hospital at Santiago.

During all this period there was but 1 death—a suicide. There was not one death from disease until after the dispersion of the brigade at Montauk. I understand, unofficially, that 2 men have died in hospital at Montauk and 1 officer at Washington. These men were in Southern camps a long time before going to Cuba, and made the whole campaign, being exposed to the weather and all attendant hardships as much as any troops on the island, and the sick showing is therefore a good one.

The camp was selected with great care by the brigade commander. The water was excellent, being a mountain stream fed by springs. Every effort was made and every precaution taken to keep it pure, and I think with success. Whenever possible contamination was feared, the men were counseled to drink boiled water. This is a difficult thing to get men to do. A thirsty man will drink anything, but nevertheless a great deal was accomplished along this line. The men were also forbidden to eat the various tropical fruits brought into camp, especially the mango. I think this precaution kept the average of intestinal troubles as low as it was. Tents were aired daily. The conical tents were dropped and the canvas lashed about the tripod and pole so that all the ground beneath was thoroughly aired and sunned. For a long time the command had no tents and the men slept under shelter of the gun paulins. The same precautions were adopted with them. The paulins were thrown back and the ground well aired. The men were also made to build bunks to raise themselves from the ground. This was generally accomplished with forked sticks, grain sacks, and split bamboo. The sinks were regularly inspected, filled in, and renewed. The men were forbidden to enter any of the old dwellings and buildings about. The use of old lumber stripped from these filthy huts, as flooring or for making bunks, was also forbidden. I think this was the most frequent and glaring sanitary misdemeanor committed in Cuba. Men were allowed to enter dwellings, strip boarding, shutters, and doors and use them in their tents.

The presence of the horses made an additional difficulty in camp sanitation, but the picket lines were frequently changed and kept very clean. In fact, a very rigid and effective police of the camp was maintained. So that, notwithstanding a great handicap, these men came out very well. They had horses to groom and the horses had to be herded. This necessitated a large proportion of the men being out in the fierce sun for quite a long time each day, and brought in that way many relapses.

The value of the precautions taken is proven, I think, by the exceedingly low proportion of cases and mortality from dysentery. But, above all else, there was at no time even a suspected case of yellow fever, and, as far as I can learn, very few organizations escaped this infection entirely. I wish also to state that every single sanitary recommendation received the hearty support of the brigade commander, and was immediately and effectively carried out.

This brigade had at all times as good a supply of medicines as could reasonably be expected under the circumstances. After the surrender of the city, we were very well supplied with not only comforts, but luxuries. Ice was furnished in quite generous amounts, and this 5 miles from the city. The prepared soups and milks were very grateful to the sick. No soldier of this command was at any time placed in jeopardy for lack of medicine.

The food supplied the men was of good quality and the ration was well handled. The beef was exceptionally good. There was a considerable lack of food during the siege, and only the most portable of the components of the ration could be brought up to the trenches. The suffering was not great from this cause, and I think, beyond lowering the resistance of the men somewhat, had no permanent ill effect. It was a hardship of the campaign borne cheerfully and alike by all, from the commanding general to the last recruit. From the fall of the city, as far as careful inspection could determine, these men messed about as well as they ever do in the field.

I wish to commend to the surgeon-general the work of Assistant Surgeons Quinton and Wilson and their zeal in the execution of their duties. These officers performed their duties and did hard professional work when they were sometimes as sick as the men they were caring for. This report has been delayed by my own illness.

Captain Kieffer's report was forwarded by the brigade commander, Gen. W. F. Randolph, with the following remarks:

"In forwarding the inclosed report, it is a source of gratification to call the attention of the Department to the extremely able manner in which Dr. Kieffer has performed his duties. As its senior medical officer present, he was brigade surgeon from July 9 to August 24, when he was compelled to succumb to repeated attacks of malarial fever. Immediately after the surrender at Santiago, the camp of the Light Artillery Brigade was established near El Caney. The command was largely without tents, which had been carried off on the transports to Porto Rico. During this time the troops were exposed to daily rains, and the sick report assumed such alarming proportions as to necessitate the establishment of a hospital for its own immediate use. In this work Dr. Kieffer showed untiring effort, and I believe that his subsequent illness was largely due to his frequent exposure to the sun in visiting Santiago, to obtain tents, cots, and supplies. Not a single death from disease occurred while the brigade was in Cuba, and when the yellow fever expert, Dr. Gonzales, made the final examination, previous to its departure, he gave it one of the few clean bills of health granted to departing troops."

REPORT OF MAJ. FRANK J. IVES, SURGEON VOLUNTEERS, CHIEF SURGEON
INDEPENDENT BRIGADE AND PROVISIONAL DIVISION, FIFTH ARMY CORPS,
DURING THE PERIOD JUNE 7 TO SEPTEMBER 12, 1898.

The Independent Brigade consisting of the Third and Twentieth United States Infantry and one squadron (Rafferty's) of the Second Cavalry under command of Brig. Gen. John C. Bates, United States Volunteers, was on board the transports at Port Tampa, Fla., when I reported for duty pursuant to orders from corps headquarters.

Upon reporting to the brigade commander I received verbal instructions to embark on the transport *Stillwater*. The medical department of the brigade consisted of myself and 8 acting assistant surgeons, 2 acting hospital stewards, 9 privates of the Hospital Corps, 4 being orderlies for medical officers, and 8 being ambulance drivers. Each regimental surgeon was equipped with a medical and surgical chest and field case, the members of the Hospital Corps with their appropriate pouches, and every officer and enlisted man in the brigade was furnished a first-aid package. There were 3 ambulances fully equipped with this brigade, and it ultimately developed that these were the only ones with the corps until sometime after the battle of July 1, 2, and 3.

No hospital equipment beyond that above enumerated was taken, for the reason that prior to embarking from Mobile, Ala., from whence this brigade sailed on June 4, Colonel Greenleaf, of the medical department, had distinctly stated that it was absolutely unnecessary for troops leaving Mobile to transport hospital supplies, as these would be provided at Tampa, arrangements to that effect having been perfected. Notwithstanding this there was no chance to equip the brigade completely at Port Tampa, owing to the confusion incidental to embarking and the uncertainty as to the exact hour of departure.

The disembarkation occurred at Daiquiri, Cuba, on June 22 and 23, each man being equipped with the blanket roll, haversack, canteen, arms and ammunition, besides three days' rations. On the afternoon of the 23d the brigade marched toward Siboney, camping about 2 miles east of the same. On the following morning, the 24th, it proceeded to Siboney and went into camp at the extreme western end of the town. Soon after reaching the latter place the squadron of the Second Cavalry was detached from the brigade, and I received verbal orders to report for duty at brigade headquarters. At about 9 a. m. word was received that Young's brigade of Wheeler's division had encountered the enemy, resulting in many casualties. General Bates instructed me, at that time the senior medical officer present, to make arrangements for the reception of the wounded. Upon reaching the lower end of the town I found a temporary hospital had been established by Maj. W. B. Banister, brigade surgeon, United States Volunteers, in an abandoned house, which had been cleaned out and rendered as fit as possible for their reception, and that 8 or 10 of the First United States Volunteer Cavalry had already

arrived and were being treated. The building occupied was an old, dilapidated structure, but it was impossible at that time to improve upon it. There was no tentage to be obtained, and as far as fear of infection was concerned, there was little choice between the buildings. The heat was intense, the hospital ship *Olivette* not in the harbor, and it was necessary to place the wounded under shelter of some kind at once. A large box of surgical dressings belonging to the First United States Volunteer Cavalry was soon after obtained and proved a most valuable acquisition. Maj. Valery Havard, chief surgeon of the cavalry division, arrived in the course of the day and assumed charge of this temporary hospital. There was some adverse criticism resulting from the use of this building for hospital purposes, which, in the opinion of the writer, was unjust. When it is considered that the Army was in a hostile country, that the village had just been occupied, that the base of supplies was practically at Daiquiri, 9 miles distant, and that there was absolutely no chance for shelter from the sun and rain until the arrival of the *Olivette*, there was nothing else left to do, as there was no natural shelter to be obtained. Subsequent events did not show that the slightest evil resulted from the occupation of this building by the sick or wounded. The independent brigade remained at Siboney until June 30. During this interval the brigade was encamped in close proximity to the houses of the town. The headquarters occupied a house previously used as a residence for the superintendent of the Juragua Iron Company. A hospital was established at Siboney, under charge of Major La Garde, and a limited amount of material was sent to the front for another located near General Shafter's headquarters. As the independent brigade consisted of only two regiments, no effort was made to undertake the establishment of a hospital, but the field equipment, consisting of the medical and surgical chests and some additional medicines and dressings, was obtained for each regiment.

One set of chests, besides a box containing a fine assortment of dressings and medicines, was also secured for brigade headquarters. The latter articles, under the personal supervision of the writer, were loaded on a wagon with commissaries and ammunition and were transported to the firing line, reaching there after midnight on the night of July 1, and proved of the most inestimable value during the two days' fighting that followed. The brigade left Siboney at 9 p. m., June 30, marching about 7 miles. On the following morning, July 1, at daybreak, it proceeded to General Shafter's headquarters, leaving there at 10 a. m. to support Lawton's division, then engaged with the enemy at El Caney. Soon after noon the brigade went into action between Chaffee's and Miles's brigades, and at about 3 o'clock assisted in taking and holding a strong stone fort from which the enemy had been dislodged. Owing to the limited number of medical officers then with the brigade no attempt was made to establish a dressing station, but it was deemed preferable for them to remain on the firing line and advance as far as practicable with the command. The wounded thereby received immediate attention, and were left in sheltered localities until ultimately transported to the nearest collecting station. By following this method the writer was enabled to render assistance in many instances, not only to the wounded of his own brigade but to many others who were too distant from their regularly established dressing station to hope for relief for a considerable time to come. Whereas these stations are necessary as gathering stations for the wounded prior to their transportation to the field hospital, it strikes the writer as essential that the wounds should be dressed as soon as possible after their reception, and that the medical officer and his assistants should be on the spot rather than have the patient wait indefinitely until means for transporting him to the dressing station are forthcoming. This was particularly evident during that portion of the battle following the capture of the stone fort above mentioned. After its capture the hill was occupied by the Third Infantry and portions of the Twelfth, Twentieth, and Twenty-fifth. The Spaniards concentrated a heavy fire upon these troops and there were many casualties, among them Captain Rodman, who was in command of the Second Battalion of the Twentieth, and Mr. James Creelman, a correspondent of the New York Journal.

The writer was the only medical officer present in this section during the battle, and at no other period were his services more urgently needed. The firing line at this point was stretched along the crest of the hill upon which the fort was situated, and a temporary dressing station established at a sheltered spot a few feet below the crest, so that the wounded had only to be carried by their comrades this short distance, thereby enabling the latter to return at once to their commands. In this way prompt assistance was rendered and the firing line not appreciably weakened, which would not have been the case were it necessary to depend upon the previously established dressing station. The regimental surgeon of the Twentieth, Acting Asst. Surg. T. S. Aby, United States Army, remained on the firing

line with the First Battalion of that regiment, which did not participate in the charge above mentioned, and the surgeon of the Third, Acting Asst. Surg. E. R. Bragg, United States Army, remained with his regiment until just prior to the charge, when his professional duties kept him in the rear, which accounted for neither of them being present at the stone fort. When all our own wounded at this point were cared for, the wounds of a number of Spanish prisoners were dressed. As the writer was thus occupied, the prisoners showed signs of great amazement and gratitude, evidently as if they had expected harsh treatment. These prisoners received the same care as our own wounded, and that same evening were carried to the nearest dressing station. The Spanish dead were decently buried at the scene of their gallant resistance, the line of intrenchments around the fort being utilized as a common grave. At about 5 p. m. the enemy had entirely disappeared. The brigade was withdrawn and bivouacked a couple of miles to the rear. The writer remained at the fort until nearly dark, and then, accompanied by his orderly, rejoined the command. During this ride he was fired at by some one concealed in the brush, which was the only instance of bushwhacking personally known to him. About 9 o'clock the line of march was resumed, and the brigade took position on the left of Kent's division, then occupying the San Juan Hill, before Santiago, this position being the extreme left of the line and covering that flank. It was reached between 1 and 2 o'clock in the morning.

On July 2 the Ninth Massachusetts Volunteers joined the brigade. During the 2d and 3d a portion of the brigade was in the intrenchments, the remainder being held in reserve about 800 yards behind the firing line. At this point the latter troops were exposed to a double enfilading fire and suffered considerably. A dressing station was established and efficient work done, the box of additional medicines and dressings proving a most valuable acquisition. Among the things in this box were sufficient extra "first-aid" packages, which were issued to the men to supply those used in the first day's fight. The casualties in this brigade during the three days' fighting were 4 killed and 29 wounded. This includes one member of the Hospital Corps wounded on July 2 while assisting in dressing a wound of a comrade. After the fighting of July 1 the wounded were transported on extemporized litters to adjacent dressing stations whose locations had been determined and were subsequently sent to the rear. On July 2 and 3 those treated at the brigade dressing station were carried to a collecting station on the Siboney road, near the San Juan River, where they were held until transportation could be procured to take them back. As the three ambulances above mentioned were the only available ones at that time, escort and many army wagons had to be impressed into service for this purpose.

I would respectfully submit the following remarks upon the personnel and equipment of the medical department on the battlefield, the conclusions being based upon personal observations, not only during the recent campaign, but for several years prior to the same: No regiment should go into active service with less than 1 surgeon, accompanied by his orderly; 1 steward and private of the Hospital Corps for each battalion; that each regimental surgeon should have a pack animal, with a mounted packer, under his exclusive control; that instead of the medical and surgical chests at present issued, ordinary stout boxes be employed, filled with a selected assortment of surgical dressings, together with a liberal allowance of a few very necessary medicines, such as quinine, cathartic pills, calomel, diarrhea tablets, antiseptic tablets, beef extract, aromatic spirits of ammonia, etc.; that each surgeon should carry on his person a small, compact pocket case—the present field case is of poor quality, clumsy, and useless.

There should be a light form of litter for active service. At an annual meeting of the Association of Military Surgeons of the United States, held in 1893, the writer submitted an article on a field litter. In the article it was claimed that an army in action required a light, serviceable stretcher that could readily and in comparatively large quantities be rushed to the front, and suggested one made of bamboo as possibly answering the purpose. However, the idea was rather discouraged by certain theorists who objected to the litter in question. In a discussion following the paper, some claimed the litter was useless on account of having no legs; others that it could not be used in an ambulance; others that it was not military enough, holding that it was desirable to have an article more suitable for the litter drill. The fights around Santiago demonstrated that the medical department should be equipped with just such a light stretcher which could be transported in quantities to within a short distance of the firing line and there distributed. The use of blankets, overcoats, and shelter tents for extemporaneous litters is not practical, owing to the difficulty and time in procuring poles. The area of destruction of the modern small arm is so extensive that the distance between the firing line and the collecting station is liable to be very great. On

that account the extemporaneous litters should not be depended upon, but the strongest efforts should be made to provide more suitable methods of transportation. As far as the writer could inform himself, the litter drill was entirely dispensed with in this campaign, and no effort was made toward its employment.

The first-aid package filled its part most nobly. Too much praise can not be bestowed upon it nor can one overestimate the benefits derived from the excellent instructions given for its use. The contents of the package might be improved by adding a small quantity of pulverized boracic acid or some other powder for a dry dressing. In many cases it was found difficult to hold the antiseptic gauze in position, which could be accomplished by a few strips of adhesive plaster. Four such strips, 4 inches long by one-half inch in width, laid flat in a small paper envelope, would be a valuable acquisition.

Prior to going into action an opportunity was offered the brigade to replenish the canteen. The men were cautioned to use the water sparingly in drinking, which enabled the surgeons to have sufficient water to cleanse all wounds before applying the dressing. In instructions in first aid this point should be emphatically dwelt upon. Also the men should be carefully impressed with the folly and danger of unnecessarily removing the dressings without the sanction of a medical officer. Several cases came to the knowledge of the writer where mischief resulted on account of the erroneous idea that a dressing should be frequently changed. By educating the soldier in this respect, much benefit will result. During the battle and subsequently the regimental bands rendered the most valuable assistance in the care of the sick and wounded. Some of their members procured rifles and participated in the fighting, while the remainder were attached to the medical department. Too much credit can not be given these men, who, under the most trying circumstances, performed their duties most excellently, displaying the greatest zeal, energy, and patience. For several years prior to the present war the writer has advocated the use of regimental bands for this purpose, and suggested that they receive special instructions in the duties pertaining thereto, but had received unanimous discouragement, especially from regimental officers. This instruction should be compulsory for all bands in the future. Better results in the instructions for the enlisted men can be obtained by requiring the medical officers to personally superintend them instead of their receiving it second-hand through their company officers.

During that portion of the campaign from July 4 to 17, designated as the siege, the brigade held its position on the left flank, and the main portion of it was located in the intrenchments, which were not abandoned until after the surrender of Santiago. The health of the command up to this period was excellent, but on the 4th the sick list was suddenly augmented by a large number of cases of acute ephemeral fever. This seemed to be confined principally to the Third and Twentieth Regiments of Regulars, the Ninth Massachusetts Volunteers apparently being free from it. The attack in most cases was sudden in its onslaught; in some preceded by a chill, but in the majority not; the temperature would suddenly run up to 104° or 105°, be attended by only a moderate increase in the pulse rate, severe frontal headache, pains in the back and limbs, a flushed and swollen appearance of the face, marked conjunctival congestion, and great prostration. The tongue in many cases was large and flabby, showing, after a day or two, the marks of the teeth. At night there was a tendency toward wakefulness or great restlessness, attended by vivid dreams; nausea and vomiting were usually present. The attack in most of these early cases lasted from three to five days, when the symptoms would subside and the patient gradually recover. This epidemic appeared during the latter portion of the battle, being fully developed about July 4. It was observed that a few days afterwards it seemed almost completely arrested, when there was a slight interval, lasting several days, when a second rush of cases occurred. This, in view of subsequent events, is of great importance, as the writer is convinced that many of the first series of cases were a mild form of yellow fever and the latter ones were malarial, thermal, or ephemeral in character. It is an established fact that Siboney was an infected locality, consequently the independent brigade, which had camped there almost a week, had been exposed to infection. The brigade headquarters had occupied a building previously used as a residence in the town, and among the first series of cases above mentioned, General Bates, all of his staff officers, orderlies, and servants were, without exception, included, and were taken sick almost identically at the same time. The writer was in the list, and although quite ill for several days, did not permit himself to be sent to the rear, but remained with the command. This illness prevented him making a clinical study of these early cases, but most of the symptoms enumerated above were present. In his case upon the abatement of the fever, the temperature became subnormal, and the pulse fell to about 45 per minute.

Dr. Guiteras saw him a few days after convalescence was established and pronounced it a mild attack of yellow fever. This was the last sickness of any kind experienced by the writer during his sojourn on the island, although he was continually exposed to all the rigors of the climate and weather.

In the first series there must have been in all about 100 cases, of which possibly 40 were transported to Siboney. Of the second series about 200 cases, of which 75 were sent to the rear. Many of these latter were pronounced yellow fever by the experts, and placed in the fever hospital, where a large percentage of them were extremely ill, and many died from undoubted yellow fever. On July 15 the writer went to Siboney, and from personal investigation became suspicious that many cases of alleged yellow fever were in reality nothing more than some form of acute, noncontagious fever, and that in sending our patients to Siboney we were placing them in a position of the greatest danger. The impression obtained from this visit to Siboney was that the majority of these experts were completely stampeded, and were calling everything yellow fever. This resulted in many cases, which the writer is now convinced were not such, being sent to the fever hospital, there contracting the disease, and ultimately losing their lives. On returning to the firing line, instructions were given not to send any more cases to the rear, which was strictly adhered to for the remainder of the campaign.

The above-mentioned suspicions became certainties in the opinion of the writer when subsequently it transpired that during the interval from July 20 to August 23, 4,900 cases of fever occurred in the provisional division (on July 13 the independent brigade was reorganized, becoming the provisional division), and there was not one death from yellow fever, nor was there a single case which could be clearly diagnosed as such. This proves conclusively, as far as the observations of the writer extend, that whereas an epidemic of yellow fever did exist at Siboney, that none existed among the army on the firing line, although sporadic cases may have developed from time to time. The medical officers of the Regular Army, and those on duty with the troops, were, as a rule, in no way included in this general stampede, which but for them might have proved disastrous to the Fifth Army Corps.

On July 18 orders were issued the division to vacate the position held on the left flank, and it took station in the neighborhood of the San Juan blockhouse. The division at this time consisted of the Third and Twentieth Infantry (regulars), the Ninth Massachusetts, the First District of Columbia, and the Thirty-fourth Michigan. The Thirty-third Michigan and the Eighth Ohio, although officially attached to the division, never actually joined. On July 19 a temporary division hospital was established on a strip of elevated ground behind the San Juan Hill. Capt. T. E. Roberts, assistant surgeon, First Illinois Volunteers, was detailed as officer in charge. Besides the surgeon in charge, there were 8 medical officers, 2 stewards, and 2 privates of the Hospital Corps, detailed from the volunteer regiments. One full company of infantry from the Ninth Massachusetts Volunteers was also detailed to act as a hospital guard; they also performed the duties of a permanent police detail and assisted in the care of the sick.

Shelters were first constructed of bamboo uprights, with brush shed, and a few days afterwards eight wall-tent flies were secured. On July 21 the first official records show 115 sick in hospital and 264 in quarters, a total of 379, of which all but 18 were from the original independent brigade.

On July 21 the writer received orders from the chief surgeon of the corps assigning him to duty in charge of two hospitals located in the neighborhood of General Shafter's headquarters on the Siboney road. These proved to be a detention hospital under the charge of Acting Assistant Surgeon Pitt, and a yellow-fever hospital under charge of Acting Asst. Surg. Hamilton F. Jones, United States Army. Each hospital contained about 115 cases. They were fairly well supplied with hospital tents, cots, bedding, and camp furniture, although the supplies were not equal to the demand. The latter portion of the month these hospitals, under the writer's personal supervision, were broken up and transferred to Siboney. Before effecting this transfer 100 complete suits of clothing were obtained from the quartermaster's department and were issued gratuitously to the convalescent yellow-fever cases. The ground occupied by both camps was thoroughly policed and burned over; all cast-off clothing, rags, worn and soiled bedding, cots, and tents were destroyed.

About the 25th a cargo of medical supplies, under charge of Major Summers, brigade surgeon, United States Volunteers, arrived at Santiago. Immediate steps were taken to improve the condition of the sick. A fully equipped division hospital, with a capacity of 150 cots, and at the same time regimental hospitals of 15 or 20 cots, were established. The sick list from this time on became enormous; fully 25 per cent of the command were on the sick report, and of the remainder fully two-thirds were on the lightest duty. An overwhelming

majority of the cases were malarial, with a few typhoid. The latter disease developed as an epidemic about August 1. This epidemic of typhoid was, in a great measure, produced by contamination of the San Juan River, due to the exodus of noncombatants from Santiago to El Caney. The latter numbered about 20,000, including many sick, who were collected in the town and in the immediate vicinity of El Caney.

The stream from which our army obtained its water supply became a common sewer for this temporary community. Except in isolated instances, there were absolutely no facilities for boiling the water; consequently, as a matter of necessity, the command was compelled to utilize the same. After the occupation of Santiago and the establishment of the hospital, 9 acting assistant surgeons and 3 civilian nurses were assigned to the division for duty. The division commander detailed Captain Sullivan's company of the Ninth Massachusetts Volunteers for permanent duty with this hospital. It gives me great pleasure to state that Captain Sullivan and his command performed the arduous duties connected with the hospital well and faithfully. These men performed guard duty connected with the hospital, general police, buried the dead, dug sinks, and, in addition, a detail was constantly on duty in each ward, night and day, administering nourishment, supporting patients to stools, and performing all the duties of nurses. Too much credit can not be given this command for their subordination, obedience, and patience under the most trying circumstances, and the valuable work accomplished by them. In this connection I would add that the division commander and the officers at his headquarters cooperated most earnestly with the chief surgeon in advancing the welfare of the sick. Transportation for supplies was always furnished and special fatigue details made whenever requested. Lieutenant Reeve, aid-de-camp to General Bates, rendered valuable assistance by volunteering to superintend the obtaining of the hospital equipment and its transportation to the site of the same. Major Irons, engineer officer, personally superintended the laying out of the hospital camp and the pitching of the tents.

On August 3 the corps commander summoned all the general officers and chief surgeons of divisions to a conference at his headquarters. When assembled he stated that his motive in thus calling them together was to obtain their individual views regarding the present sanitary condition of the army of occupation and recommendations as to the best policy to pursue. The unanimous opinion was then expressed that the army was in a deplorable condition on account of illness, and the only course to prevent its ultimate destruction was its immediate removal from Cuba. The feasibility of moving the command to the high ground in the interior was discussed, but found absolutely impossible owing to the fact that there was no organization in the entire army which could undertake to break camp and march 5 miles without 80 per cent, at least, being compelled to go upon sick report. A 10 miles' march would have converted the army into an immense hospital. The railroad, having a carrying capacity of only 600 men, could not be used, as it would have taken a month to transport the army and its supplies. The Washington authorities seemed more apprehensive of yellow fever than anything else, which was probably brought about by the alarming reports from the experts and the almost general stampede, above referred to, in their ranks. But the regular and volunteer officers on the firing line were convinced that yellow fever was one of the lesser evils so long as it was confined to Siboney, but that typhoid, malaria, and dysentery were to be dreaded. These diseases proved so extremely debilitating and the malarial relapses recurred so frequently that it was only a question of time when the vast majority would succumb unless removed from the pernicious influences. This resulted in two statements being prepared and signed, one by general officers and the other by the chief surgeon, setting forth the above facts, and recommending the immediate removal of the entire corps to some point in the United States. This was favorably acted upon.

On the following day a board of officers consisting of Col. C. F. Humphrey, quartermaster department; Maj. F. J. Ives, brigade surgeon, United States Volunteers, and Lieut. J. J. Pershing, Tenth Cavalry, was ordered to inspect all transports leaving Santiago, with the view of determining their condition, capacity, and supplies. This duty devolved almost exclusively upon the writer, as Lieutenant Pershing became ill and left on one of the early transports, and Colonel Humphrey's duties occupied his time almost exclusively. Every transport which left Santiago from August 5 to the 26th, when the writer sailed on the *Berlin*, was personally inspected by him one or more times before sailing. These inspections were in every case thorough and covered the condition of each vessel as to cleanliness, sanitation, and supplies. No troops were allowed to board a vessel until it had been reported in fit condition for their reception. The water-closet facilities were examined and found to be amply able to accommodate the number of passengers, and each was provided with suitable means of flushing. The floor

space was carefully examined, and in no case was overcrowding permitted. If the utmost capacity of a vessel was 1,000, not over 500 or 600 would be allowed to embark, which ratio was approximately maintained. The board was particularly careful in this respect, owing to the known weakened condition of the men and the large number of sick. The question of hammocks for the men and proper stateroom capacity and messing arrangements for the officers was investigated, also whether the command was properly rationed and the senior surgeon had sufficient assistance and medical supplies. A schedule of medicines was made out by the chief surgeon of the corps, based upon the number on the transports. These together with the liberal allowance of foodstuffs for the sick were, under the personal supervision of the writer, put on board each transport. In many cases cots, mattresses, and bedding were taken for the use of the sick. Notwithstanding adverse criticism in the daily press, the writer does not believe an army ever before in the history of the world was more completely and more comfortably equipped than the Fifth Army Corps in the journey from Santiago to Montauk. When it is considered that the army was an immense moving hospital, the death rate was remarkably low. Two of these transports, the *Mobile* and the *Alleghany*, were the targets of unusually vindictive attacks. The *Mobile* is a large cattle ship, with an utmost capacity of transporting 3,000 troops. She carried on this occasion about 1,600. The ship was clean, well ventilated, and in good sanitary condition when the troops boarded her. The accommodations for commissioned officers were not particularly satisfactory, but no complaints were made on that score. Supplies of all kinds were ample, for there were ten days' travel rations for the men and a liberal amount of special foods for the sick. The former had hammocks and the latter cots.

Adverse comments have been fully indulged in on the employment of "cattle ships," grousing mental pictures being drawn whereby visions of inhumane overcrowding were indulged in, leading one to imagine our men jammed like a pen full of cattle in the stock yards. As a matter of fact ships of the *Mobile* type are most admirably adapted for transport purposes. They are constructed with a view to steadiness, and are well ventilated. The writer personally examined and inspected every vessel in the transport fleet, and saw every type from the *St. Paul* to the *Stillwater*, and the so-called "cattle ships" were far above the average as far as individual comforts of the enlisted men were concerned. The *Alleghany* was one of the most commodious and desirable of the transports. The statements against her made in the press dispatches were absolutely without truth. Dr. Magruder, of the Marine-Hospital Service, who inspected her upon arrival, was quoted as stating that she was in a most deplorable condition. In my presence, and that of several reporters, he denied having made any such remarks, and said that on the contrary the vessel was above the average. Captain Sullivan, of the Ninth Massachusetts Volunteers, was the senior line officer on the *Alleghany*. He informed me that all derogatory statements as to the condition of the ship were false; that during the trip from Santiago the men were comfortable, well taken care of, and had abundant supplies. The large death rate (14) was due to the greatly debilitated condition of the men, and was in no way augmented by anything incidental to the journey. The same can be said of the death rate (10) on the *Mobile*. The following features impressed themselves upon the writer as essential for all transports: That the fixed berths be entirely done away with and hammocks substituted; that every sleeping section should not only have port holes, but there should be a system of electric fans and forced ventilation; that the bathing facilities be rendered as commodious as possible; the kitchen facilities should be much increased, so that one hot meal a day may be served. All vessels should be lit by electric lights, and the quartermaster's department should be responsible that sufficient life-preservers are on hand. There was not a ship in the entire fleet that had anything like the requisite amount of the latter, and the lifeboat capacity was entirely inadequate. This fact seemed to strike nobody as particularly essential, but unless it is rectified there may be a terrible calamity. Suitable regulations should be established for the guidance of the men while on the transports. If the weather permits they should be forced to take off their leggings, shoes, and stockings, at least during a portion of the day while the decks are being scrubbed down. A light form of shoe or slipper should be furnished, and an inexpensive yachting cap or light headgear of some kind. Many of the men, through carelessness or otherwise, lose their hats overboard, and as it is impossible to replace these except by borrowing from someone having an extra one on hand, very serious results are liable to follow.

The division began to embark for Montauk Point on August 18, being the last to leave. It was deemed preferable for each organization to carry its own sick, leaving behind only those whose condition rendered their removal perilous. The *Olivette* had previously taken on 40 cases of typhoid. The steamer *Bary*

State, a hospital ship sent by the State of Massachusetts, took 60 of the worst cases in the Ninth Massachusetts, the majority of these being typhoid. A board of medical officers, consisting of Major Kilbourne and Captain Fisher, of the medical department, United States Army, and Acting Assistant Surgeon Gonzales, was appointed to examine all the members of each regiment prior to its embarkation, with the view of determining whether any cases of yellow fever or even suspicious cases existed. All cases pronounced such by this board were ordered to remain in a detention hospital established for that purpose. About 30 cases in the division were designated by this board as suspicious, but it was afterwards demonstrated that none of them had yellow fever.

Major-General Bates, his headquarters and staff, including the writer, left Santiago on August 26, on the transport *Berlin*, which also carried the First Illinois Volunteers. After a pleasant and uneventful voyage Montauk Point was reached on August 30, a landing effected on the following day, and everyone placed in the detention camp at that place. The Provisional Division was never reorganized, but one regiment after another was ordered to their respective homes until, on September 12, it was completely dissolved.

Sanitary regulations.—During the period from the time of debarkation to the surrender it was impossible to follow any sanitary rules beyond a proper location and care of all sinks and the general policing of individual camp sites. Water could not be boiled; men were forced to sleep on the wet ground with no tentage other than shelter tents, and but few were provided with changes of underclothing. After the surrender the condition in many regiments was improved, their camp equipments being obtained from the transports. The Third United States Infantry and the Ninth Massachusetts Volunteers were not able to obtain their property and as a result were in a very deplorable condition, especially the latter, who were not so able to take care of themselves, not being seasoned soldiers like the others.

The commissary department fulfilled nearly every requirement during this campaign, and at no time was the brigade, and later the division, without rations. Occasionally one article or another might be missing, but under the circumstances the department was excellently administered. After the surrender fresh meat and fresh bread were issued. Canned fruit, vegetables, and quite an assortment of commissaries were also to be obtained. Ice in fairly good quantities was also issued for the sick. The writer recommended to the corps commander that an ice machine in Santiago be seized and turned over to the medical department, but the idea was not adopted, as a large supply of ice was expected, which was ultimately received and issued. Soon after the occupation of Santiago supply depots were established by the commissary and medical departments. Gratuitous issues of canned fruits, soups, lime juice, rice, and condensed milk were made by the commissary in sufficient quantities for all the sick, the same being readily obtained upon requisition countersigned by the chief surgeon of the corps. The issue of coffee in the bean to the command during active hostilities was very unsatisfactory and occasioned unnecessary hardships. There being no coffee mills on hand each soldier was forced to crush the bean in his cup, which was usually done with the bayonet handle. The coffee was thus imperfectly ground and the product not up to the ordinary standard. Tobacco in some form during such a campaign should be a component part of the ration. Much suffering was experienced by the command on account of its absence. An emergency ration of some kind should have been supplied.

The Red Cross Society was a valuable adjunct in supplying necessities to the sick. The writer had no occasion nor opportunity to call upon the same until after the surrender, when a requisition calling for oatmeal, corn meal, rice, malted and condensed milk in quantities sufficient to last the division several days was promptly filled. This occurred before the commissary department had established depots for the issue of supplies outside of the regular ration. Subsequently the society was called upon from time to time and never failed to respond.

The supply of medicines during the campaign was at times woefully short. However, by active exertion on the part of the writer, he was enabled to obtain a fair quota of everything available. From the time of landing until after the battle of July 4 the brigade was fully equipped, but when the epidemic of fever set in the supply of quinine, antipyretics, and calomel were quickly exhausted. Beef extract and condensed food of some kind was most urgently needed, as the only articles of diet were bacon andhardtack. Quinine and antipyrine were furnished in quantities which, although not abundant, were sufficient to meet the requirements, but the beef extract and calomel were not to be obtained. In fact, until the latter part of August the supply of calomel was practically nil. After the surrender a medical supply depot and ambulance station was established under the control of Lieutenant Kennedy, assistant surgeon, United States Army. Under this officer's able management, a good supply and

variety of medicine were constantly on hand. Limited amounts of beef extracts and whisky were obtainable. This depot was discontinued in the latter portion of July, and another, under Major Summers, brigade surgeon, United States Volunteers, was established in Santiago. During a period of several days, until Major Summers was relieved by Major Carr, brigade surgeon, United States Volunteers, there was considerable difficulty in obtaining supplies, and for one or two days the division was almost destitute of medicine of any kind. Colonel Havard, the chief surgeon of the corps, made a limited purchase of medicines from a local dealer, and a day or so later the writer, upon the approval of the chief surgeon, made extensive additional purchases from the same source. The *Olivette* arrived about August 8 with an assortment of medicines, but the supply was limited and contained only two small bottles of calomel. Soon after this medicines of all kinds came rapidly pouring in, and, under the capable management of Major Carr, were available for almost immediate issue. Besides the purchases above mentioned, quite an amount of calomel and other drugs were bought by individual regiments.

In the opinion of the writer, many statements regarding the absolute lack of medicines were exaggerated. At the meeting of general officers and chief surgeons above mentioned a chief surgeon of a division stated and repeated that his division had been without medicine of any kind for eleven days. No such state of affairs existed in the Provisional Division, for the writer adopted the plan of going personally every morning to the supply depot and there ascertaining exactly what medicines were actually on hand and what expected, and in that way succeeded in never being totally without medicines, except for the couple of days above mentioned. By adopting this plan in all subsequent efforts he was enabled to equip a hospital which was, in the estimation of many, second to none in the corps. The medicines most sorely needed, and of which there was a decided deficiency, were calomel, bismuth, morphine, strychnine, and a tonic tablet of some kind. The latter would have been of inestimable value during the period of convalescence. After the arrival of Major Summers hospital supplies of all kinds, exclusive of medicines, were abundant and readily obtained.

One of the greatest difficulties encountered by the writer in the management of his department was the almost complete lack of experienced hospital stewards. There were a number of volunteer hospital corps men in the division, but, with the exception of two acting stewards, one each with the Third and Twentieth Infantry, there were no regulars on hand. These volunteers did excellent service, but, being unfamiliar with military matters, were unable to render such assistance in the management of affairs as the serious nature of the occasion demanded. With the exception of the chief surgeon, there was no medical officer of the Regular Army with this division, consequently nearly all of the executive work pertaining to his department devolved upon him, not only in his own office, but throughout the command. The qualifications of many of the acting assistant surgeons were far from satisfactory, this being especially the case with many who reported for duty toward the end of the campaign.

Colonel Havard on several occasions offered the services of female nurses, but the writer declined them, being at that time opposed to their use in the field. Before the final close of the campaign, however, he became convinced that his previous conclusions were erroneous and that female nurses were in every respect superior to males in all division and general hospitals. Their presence near the firing line during active hostilities would not be desirable, but from their work in this campaign there can be no doubt of their great value in military hospitals.

Before concluding this report the writer would like to state that the conduct of all the surgeons and hospital attendants while attached to the brigade and division was on all occasions exemplary. All duties were performed faithfully, and each man seemed to strive with all his energy to accomplish what was assigned him. As chief surgeon of the division he takes great pleasure in expressing his high appreciation of the valuable services rendered by Acting Asst. Surg. T. F. Aby, regimental surgeon, Twentieth Infantry. This officer's unceasing devotion to duty under the most trying circumstances was a matter of general comment. Acting Asst. Surg. C. E. Pöey proved himself an excellent officer, performing all duties assigned him with an energy and thoroughness that merits recognition. Majors W. P. Willard, surgeon, First Illinois, and R. A. Pyles, surgeon, First District of Columbia Volunteers, proved themselves efficient and valuable medical officers. The sanitary condition of these two regiments was fully as good as any in the division, and would compare favorably with that of the very best in the corps.

Capt. T. E. Roberts, assistant surgeon, First Illinois Volunteers, being the officer in charge of the division hospital, was in close official relations with the writer and cordially operated with him on all occasions. This officer, under the

direction of the chief surgeon, had exclusive control of the hospital, and by his energy, zeal, and constant attention to duty and high professional attainments contributed more than any individual toward its success. The regimental surgeons were unable to keep records during the campaign, owing to the immense sick report and total lack of clerical facilities. However, a list of all cases admitted to the division hospital from July 18 until its final abandonment on August 25 was maintained and will enable the writer to furnish your office in the near future with a report of sick. A consolidated numerical sick report of the division was made daily, beginning July 21, from which the following tables are compiled:

Consolidated sick report of the Provisional Division, Fifth Army Corps, from July 21 to August 25, 1898.

Treated:		
In division hospital.....	967	
In regimental camps.....	5,620	
		6,587
Returned to duty.....	5,555	
Transferred:		
To general hospital.....	87	
To hospital ships.....	114	
To detention hospital.....	81	
Died.....	81	
Transferred to transports <i>a</i>	769	
		6,587
In division hospital:		
Fever (all kinds).....	942	
Other diseases.....	25	
		967
In regimental camps:		
Fevers.....	8,998	
Other diseases.....	1,622	
		5,620
Total.....		6,587

CONSOLIDATED REGIMENTAL REPORTS.

	Treated in division hospital.	Treated in regimental camps.	Total.	Length of time attached to division.
3d Infantry.....	80	719	799	July 21 to Aug. 18.
20th Infantry.....	108	1,040	1,148	Do.
1st Illinois Volunteers.....	70	1,443	1,513	July 21 to Aug. 25.
1st District of Columbia Volunteers.....	101	1,231	1,332	July 21 to Aug. 21.
9th Massachusetts Volunteers.....	542	904	1,446	July 21 to Aug. 25.
24th Michigan.....	40	283	323	Aug. 4 to Aug. 19.
Casual.....	26	.....	26	
Total.....	967	5,620	6,587	

CAUSES OF DEATHS.

Typhoid fever.....	11
Pernicious malarial fever.....	7
Malarial fever.....	4
Measles.....	2
Functional disease of the heart.....	2
Gunshot wound (assault in a brawl).....	1
Tuberculosis pulmonalis.....	1
Shock from exposure.....	1
Asthenia.....	1
Dysentery.....	1
Total.....	81

a Those actually on sick report taken by regiments on journey to Montauk.

DEATHS.

Officers.....	2
Enlisted men.....	29
Total.....	31
Civilians attached to command.....	1
Total.....	32

Maj. Patrick J. Brady, Ninth Massachusetts Volunteers, died suddenly of functional disease of the heart, July 29, 1898.

Maj. Michael J. O'Connor, Ninth Massachusetts Volunteers, died August 6, 1898; pernicious malarial fever.

Frank Talley, civilian, with First Illinois Volunteers, died August 4, 1898; remittent fever.

When the medical service was systematized after the surrender, each regimental surgeon was required to report daily all suspicious cases of yellow fever. There were 26 of such cases reported. They were in every instance isolated, but none developed into yellow fever. Only two of these were taken to the detention hospital, and, as far as learned, neither proved to be as suspected. Frequent examinations were made by Acting Assistant Surgeon Aby, whose residence had been in Louisiana for years, and who is perfectly familiar with the disease. He maintained throughout that he saw no case of yellow fever while on the island. From the clinical history of the fevers under treatment, the absence of death, and the fact that not a single case of yellow fever developed in the division during the journey north and subsequently, it seems to the writer very clearly demonstrated that his conclusions regarding the character of the fever were verified.

Pursuant to verbal instructions from the chief surgeon of the corps, the division hospital was abandoned on August 25, the tentage left standing, and all property remaining therein undisturbed.

REPORT OF COL. WILLIAM H. FORWOOD, CHIEF SURGEON, CAMP WIKOFF, MONTAUK POINT, LONG ISLAND.

[Dated October 18, 1898.]

The following brief account of my work at Montauk Point, Long Island, is respectfully submitted for your information:

I left this station July 31, 1898, in obedience to the following order:

[Special Orders, No. 177—Extract.]

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE, *Washington, July 29, 1898.*

26. Col. William H. Forwood, assistant surgeon-general, United States Army, will proceed to Montauk Point, Long Island, New York, and there establish a temporary tent hospital of 500 beds, assist in the selection of suitable camping grounds and in locating wells for camps, and in general act as a sanitary expert in providing for the health and comfort of the troops to be sent to that point, and on completion of this duty will return to his proper station. The travel enjoined is necessary for the public service.

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

In accordance with your verbal instructions I proceeded first to New York City and reported to Brig. Gen. G. L. Gillespie, United States Volunteers, commanding the Department of the East. The general had no instructions about making a camp at Montauk, and as there was no one up there to render any assistance I waited, reporting each morning until Wednesday, August 3. On that day Capt. J. N. Patten, quartermaster of volunteers, and Mr. Smith, of the Quartermaster's Department, reported, and we went together to Montauk in a special train with the president of the Long Island Railroad Company, arriving there at 3.30 p. m. We drove round and took a general view of the grounds.

Thursday, August 4, I studied the location more in detail, selected sites, and made plans for a large field hospital, a detention hospital, and for the detention

camps. The ground was then examined with a view to the location of wells and the best method of obtaining a suitable supply of water for the various widely separated camps and hospitals. It was apparent at once that drive wells were impracticable on account of the boulders and compact layers of clay, and that in order to get a sufficient quantity of water one or more large deep wells would have to be dug. At Montauk Point the ground is covered with a mass of glacial drift, composed of large and small boulders, boulder clay, and gravel, thrown up into hummocks, with intervening excavations everywhere over the surface. Under this the same layers are met with that prevail on other parts of Long Island and along the middle Atlantic coast, known in geology as the "Potomac beds," consisting of a series of clay, gravel, and sand of varying thickness, repeated one after another down to the primitive rock.

There is little soluble mineral matter except a trace of iron in the clays, and the water found in these beds is exceptionally pure. The water from wells at Montauk is therefore of the same character as that found at other points on Long Island, where its purity and fine quality are well known. It happens also at Montauk that the upper layer of the series is the clay several feet in thickness and very compact. This constitutes a safe protection against surface drainage. Water that accumulates from rain in the numerous basin-like excavations everywhere over the boulder drift does not percolate away rapidly into the ground, but remains for weeks in pools with clay bottoms, almost as impervious as cement, until it slowly disappears by evaporation or overflows when the rain falls again.

Long Island is celebrated not only for the purity of its well water, but for the abundant quantity to be obtained in the heavy layers of water-bearing sand and gravel at a depth of from 40 to 60 feet. Mr. C. A. Lockwood, an experienced well-digger from Jamaica, Long Island, appeared upon the ground, and Captain Patten immediately set him to work in a suitable location to dig a large well, which he thought would furnish 500,000 gallons, and which did eventually furnish more than that amount of excellent water per day. This method of obtaining water involved the erection of steam-pumping apparatus, large tanks, and extensive pipe lines, and the troops were soon to arrive. To meet the emergency until a well could be dug it was proposed to establish a pumping station temporarily on the shore of Fort Pond, near by, and to order up a number of water wagons at once. The water in Fort Pond is mainly from surface drainage, but at that time the surrounding region was clean and free from sources of contamination. The pond is nearly a mile long and half as wide and the water contains about 50 grains of salt to the gallon.

The grounds selected for a military camp at Montauk Point comprised an area several square miles in extent, uninhabited, and bare of trees, except a few stunted shrubs in sheltered places, which bore evidence of the high winds that prevail there at certain seasons. There are two large ponds or lakes and very many smaller ones scattered over an uneven surface, which is generally high and well drained, ranging up to 100 feet above sea level. The soil is a rich loam well covered with grass, and the landscape bordered on one side by the ocean and on the other by Fort Pond Bay presented a very picturesque appearance, but there were no hard roads and it was evident that much time and labor would be required to make and keep them in repair on this loam and clay with the heavy teams and the vast amount of hauling needed for a large military camp.

At the station we found only a single railroad track ending at a small shanty on a barren sand bar. There were no switches, side ways, platforms, storehouses, or other facilities for landing the thousands of carloads of freight, passengers, and material soon to arrive. On Fort Pond Bay there was a narrow pier and a small fishing wharf, but the pier was not wide enough for the landing of a transport vessel and the fishing wharf was so insecure that a danger signal was placed across the entrance to warn people from walking out upon it. Both of these structures had to be repaired immediately by the driving of heavy piles and the use of bolts and lashings. On this day, August 4, the movement of troops from Santiago, with thousands of sick, was ordered to begin at once, and three days later the first installment from Tampa came. There were no teams, lumber, tents, men, or means at hand to prepare for their reception. The enormous task and the grave responsibility before us was fully appreciated as we looked out over this bare and lonely region so soon to be crowded by an army of soldiers, more than one-half of whom would require hospital treatment.

I telegraphed the Surgeon-General for men of the Hospital Corps to come up at once with tents and rations. That night we returned to New York, the quartermaster to make contracts and order up men, teams, lumber, tents, boilers, engines, pumps, pipe, tanks, pile drivers, tugs, lighters, and a thousand things that were necessary for the work, and I to procure medical supplies, bedding,

furniture, cooking ranges, etc., which I did for a hospital of 500 patients. On Friday, August 5, Major-General Young reported in New York and went up to command at Montauk, and having completed my arrangements with the medical purveyor, I followed on the evening train.

August 6 was a day of waiting and expectancy. The railroad company was beginning to lay switches and side tracks at the station. Acting Assistant Surgeon Holmes reported for duty. I received instructions from the Surgeon-General, and laid them before the major-general commanding, to select detention camps for 4,000 men with detention hospitals convenient. These were already laid out awaiting the arrival of transportation, labor, and material for their construction.

Sunday, August 7, still waiting. I sent the following telegram to the Surgeon-General: "Tents, lumber, rations, and water expected soon. Sick men better not be sent here before Tuesday at the earliest." I also telegraphed to have a disinfecting barge from the Marine-Hospital Service sent to take charge of quarantine in the harbor and to disinfect, when necessary, the men's clothing and effects before landing. This was referred to General Wyman and acted upon promptly, and the barge *Protector* arrived August 11 with Passed Asst. Surg. G. M. Magruder, Marine Hospital Service, and three assistants. An attempt was made to haul some boards borrowed from the railroad company on their carts to the proposed pumping station on Fort Pond, but it was a partial failure; the lumber slipped from the carts and was soon scattered all along the road. These unusual objects in the way frightened the mules and one cart was turned bottom up on the Italian driver, who sustained serious if not fatal injuries to his back and internal organs.

Monday, August 8.—Late last night the Sixth United States Cavalry, under Colonel Anderson, came into the station from Tampa, Fla., with 36 sick, including typhoid cases, in charge of Dr. Ira C. Brown. This command had with it regimental wagons and ambulances, which was the first transportation available at Montauk. They brought also tents and fifteen days' rations. The sick remained on the cars until arrangements could be made to bring them up. One steward and 10 men of the Hospital Corps having reported from Governors Island, hospital tents were pitched on a clean, grassy slope at the site of the general field hospital. Cooking ranges, mess chests, and medical supplies in large quantity were already at the station. Tent flies were spread in the tents and hair mattresses and blankets laid on them, and the sick were soon made as comfortable as possible. Milk was obtained from a man at Amagansett, who came and entered into an agreement to furnish a regular supply each day as needed morning and evening, by train, but it had to be hauled from the station. Ice was purchased from Mr. Parsons, who had a small ice house near the railroad terminus. These supplies continued to be furnished in regular and increasing quantities as needed, and were kept up, notwithstanding many very liberal contributions from individuals and aid societies, because the latter supply was irregular and uncertain. Water was brought to the hospital in barrels on army wagons. On this day a small quantity of lumber and 12 carpenters were secured and the construction of hospitals at Montauk Camp began. The first structure built was the general hospital kitchen. While the building was being erected a cooking range was brought and set up inside ready for operation. There was no time or lumber then to lay a floor, although all the other kitchens were floored as they were built.

Dr. Ira C. Brown was placed in charge of the sick, with Dr. Holmes, Steward Neil, and 10 Hospital Corps men as assistants, all of whom worked hard and took excellent care of their patients. There was great trouble for a while, at first, to get carpenters who would work on the hospitals, because they were afraid of being subjected to quarantine. Then again, seeing an opportunity to profit by the sudden and urgent need of men, they all went on a strike for higher wages. When these difficulties were overcome rain set in, and for two or three days the work of construction progressed very slowly. Hauling, however, continued, and an effort was made to accumulate lumber and medical supplies. Bales of blankets, pillows, and mattresses, and boxes of drugs were piled up under paulins, and tent flies on scantling, and the very limited number of wagons and ambulances labored in mud hub deep until the animals were exhausted. Teamsters unfamiliar with the grounds lost their way and wandered off to other camps, and sometimes left their heavy loads stuck fast or upset in the ruts.

On the following day 14 carpenters reported, but August 10 there were only 2, until General Young came to the rescue and secured a force of 30. It rained hard all the afternoon, however, and little could be done. Captain McMillen was

detailed as quartermaster and commissary of hospitals, and Captain Sewell assisted in the erection and flooring of tents at the detention hospital, working all day in the rain. Tents were set up and floors laid under shelter of the canvas.

Passed Asst. Surg. J. J. Kinyoun, Marine Hospital Service, having reported on the 10th, I obtained through General Young possession of the fishing wharf on Fort Pond Bay and turned it over to him for a quarantine station and landing. Learning from Dr. Kinyoun that the Marine Hospital Service had at Philadelphia a steam sterilizer of 4-foot cylinder, with boiler complete, and not in use, I immediately took steps to procure it, and its prompt arrival was facilitated by the president of the Long Island Railroad Company, who had it forwarded by special freight. It was brought to detention hospital, where a frame building had been erected for it, and a sterilizing plant was established there to disinfect the clothing and bedding of patients from infected ships. I also telegraphed the same day to the Surgeon-General specifications for a suitable laundry plant to do the hospital washing. These were approved and referred to the Quartermaster's Department for construction, but the laundry was not completed and in working order until September 10, a month later.

On August 10 there were 1 steward, 2 acting stewards, 21 nurses, and 50 sick in the temporary hospital tents, which had been floored as lumber could be spared. The dispensary and office were up and occupied, and frames and platforms for tent wards were being built. Sick were being brought in from the camps. More medical officers were called for and quickly came. Letters and telegrams were received from people in all sections of the country offering money and supplies for the sick, and others, representing various aid societies, were on the ground ready to furnish anything needed or useful.

August 11 the Red Cross yacht *Admiral* came into the harbor loaded with 20 tons of assorted supplies, which were brought to the general field hospital, where a storage pavilion was erected for them 15 feet wide by 113 feet long. The Red Cross Society filled this storehouse to the roof, issued the articles freely, and kept it refilled from this time on to about the 18th of September. The Women's National War Relief Association, through Miss Helen Gould, selected a corps of expert cooks and assistants—distinguished chefs from New York and Boston—and placed them at my disposal for service in the general and special diet kitchens of the hospitals, where they remained and exercised their skill in preparing food for the sick. From this time on the army ration was supplemented by almost every article of food to be found in the larders of the best hotels in any city. All offers of aid from outside were promptly accepted, and bales and boxes and parcels arrived by every train. The finest wines and liquors, mineral waters, fruits, eggs, chickens, turkeys, game birds, meats, preserves, and all sorts of delicacies came from day to day in enormous quantities. Four vessel loads of supplies, mostly food and clothing, were landed at different times on the quarantine wharf and distributed to the troops sick and well in camp. A full carload of lemons was sent from California. Others contributed underwear, wrappers, sheets, pillows, cushions, etc., and one donation consisted of 500 reclining chairs, rockers, and sofas.

August 12 four wards at the general hospital were completed and 90 patients were in bed under care of nurses, with all kinds of medical and hospital property in abundance. At detention hospital 125 beds were ready for patients. On this day the Surgeon-General placed in my hands a check for \$1,000, and at a later date \$700 more, for the purchase of ice, milk, chickens, lemons, or whatever else might be needed for the benefit of the sick, and I was urged to spare no pains to provide early and promptly everything that might be required for their comfort. I was bound by no regulation forms, but had authority to order everything direct by telegraph, which I did.

August 13 the first transport from Cuba came into the harbor and 50 sick were landed and sent to general hospital on the following morning. The troops went to detention camp, where hundreds of tents had been already pitched and floored for their reception, under the direction of Brigadier-General Randall, who had command there. I selected Maj. J. P. Dodge, brigade surgeon, volunteers, a most excellent officer, and had him detailed to report to General Randall as medical inspector of detention camps, with instructions to visit daily the different regiments and detachments to find out what they needed and aid them in getting supplies. His report was forwarded to you some days ago. These camps were situated in a beautiful part of the grounds and kept in a most perfect state of police, and the exhausted and fever-stricken soldiers recuperated rapidly while there.

August 14 Maj. C. L. Heizmann, surgeon, United States Army, reported and was assigned to duty as surgeon in charge of the general field hospital—a difficult

and laborious position, as it afterwards proved to be, which he held until the close of its existence. He selected Maj. Ira C. Brown, surgeon, volunteers, as his executive officer. I had one medical officer assigned to duty at the landing to attend to unloading sick from the transports, and one was kept at the railroad station to get out freight and send it up to the hospitals; and later on another was required to be at every departing passenger train to look after the men going on furlough. From this time on there was no lack of carpenters, the weather was favorable, and hospital construction progressed rapidly.

The tent pavilion wards extended outward on either side from a central walk or covered way, with the kitchens and dining halls at one end and the dispensary, storerooms, offices, and officers' quarters at the other. The kitchens were ample frame structures, covered with oiled paulins and equipped with a number of the most approved modern cooking ranges and appliances for general and special diet. Adjoining each of these was a frame building of equal size, covered with boards and tar paper, and provided with a cold-storage room at one end for meat and at the other for milk, while the main portion was fitted with shelving for commissary articles. The wards were floored in one continuous platform 15 feet wide by 113 feet long, on which substantial frames were erected of 2 by 4 scantling for six hospital tents and two flies. One fly intervened between each two tents, to break the continuity and provide ventilation. The whole was then covered by tent flies in the usual way. Each pavilion thus formed a comfortable and convenient ward of 36 beds, arranged 4 on one side and 2 on the other, at right angles, in each tent, with a continuous passageway between. Space under the two flies was utilized for linen cases, storage, water coolers, oil stoves, bath tubs, buckets, etc. A linen case with shelves and locker was built for each fly in every ward.

The dispensary, general office, and storage rooms were of the same dimensions as the wards. The female nurses were quartered in a series of pavilions 15 by 42.4, being three continuous hospital tents with floor and frames. There were 27 of these pavilions for the trained nurses and Sisters of Mercy and others for post and express offices, chapels, mess halls, storerooms, isolation wards, dead houses, and for relatives visiting the sick. The female nurses were in three camps, each provided with their own kitchen, storeroom, and mess hall. The medical officers occupied wall tents with floors and frames, and the hospital corps and male civilian cooks, nurses, and laborers, common tents. At detention hospital the arrangement was varied to suit the ground and for better isolation of cases.

The number of carpenters kept on this work ranged from 75 to 100 per day, as many as could be conveniently supplied with lumber without diverting it from other purposes. Vast quantities of boards and scantling were required for flooring tents at the camps, and for storehouses, sinks, and other buildings; and teams that had to haul this and other freight were limited, as well as space for loading at the platforms. Soldiers' tents were floored in every camp as fast as possible, but the troops soon began to come in such numbers that this could not be completed in all cases until after their arrival.

August 15, the detention hospital received its first consignment of 60 patients from the *St. Louis*, an infected ship. There were then 210 sick in general hospital, with many vacant beds and plenty of supplies. Surface pipe had been laid to the hospitals, and water from Fort Pond was pumped direct. Work on the 80,000-gallon tank was in progress. The pump was connected with the well three days later, August 18, after which the water came from there. It was distributed through iron pipe laid on the ground. The total length of pipe laid amounted to about 12 miles. When the tank was finally completed and filled it appeared that by some mistake in calculation there was not sufficient pressure to carry water through the pipes, and direct pumping had to be continued as before. The tank was then used to fill water wagons for sprinkling the roads.

August 16, we had 750 beds. In general hospital 240 patients, and in detention hospital 62, with 150 ready to land. The yellow-fever tents contained 2 patients. There were tons of supplies at the station, which we were trying to get up. Roads bad and animals exhausted. Ambulances, 11. The one difficulty was then and had been from the start lack of enough transportation. The Surgeon-General ordered the erection of another hospital of 100 tents, and authorized the making of contracts with doctors, nurses, and cooks. Built quarters, kitchen, dining room, bath house, etc., for female nurses.

The question of sending patients, especially typhoid cases, to New York, New Haven, and other points, had been considered and authority from the Surgeon-General obtained; and on August 17 the Red Cross yacht at New York was offered and accepted by telegraph for that service. Miss Quintard and 13 female nurses reported, also several male nurses and cooks selected by the Women's National War Relief Association.

August 18, the general hospital was completed and work on the annex begun. The Red Cross yacht reported. It was a private yacht fitted up with elegance and comfort and had a capacity of 15 beds. One medical officer, 1 male and 2 female nurses with all necessary medical supplies were placed on board and regular daily trips commenced, carrying sick mostly to New Haven, New London, and Bridgeport hospitals. This convenient and comfortable little vessel continued in service without interruption until the breaking up of the camps. We needed a larger transport suitable for carrying the sick, which was supplied by the elegant passenger steamer *Shinnecock*, August 30. There was great pressure from men at the camps to get into hospital where delicacies were served and where furloughs with transportation to and from their homes were given. At this time the general hospital had 430 patients, 8 doctors, 50 hospital-corps men, 30 female and 8 male nurses, and 6 cooks; in detention hospital 300 patients, 7 doctors, 20 hospital-corps men, 5 cooks, and a proportionate number of nurses not stated. Regular medical supplies and delicacies reported abundant, with outside contributions coming in from all directions. Doctors, nurses, cooks, and hospital-corps men were employed and came in large numbers as the sick in hospital increased. Many medical officers were detailed to duty with the regiments in camp. The whole number of female nurses, contract and volunteer, was 312, of whom 103 were Sisters of Charity.

August 19, the transports *Comanche*, *Mobile*, and *Seneca*, with a large number of sick, were in the harbor. I had 250 vacant beds at the general hospital. After 150 of the worst cases had been brought up it was late and the animals were exhausted. Operations were suspended until the following day, when more wards were ready and all sick were taken in and provided for. Every patient as he landed from the ambulance was offered hot soup and milk punch from the hands of the female nurses and was placed in bed on a hair mattress.

August 20, 5 new wards at the annex were completed and as many more under way. There were a large number of vacant beds ready at detention hospital, and I felt confident of being ready to take the sick as fast as they would come, but I was anxious to find means of sending some to other hospitals. August 21, I therefore selected the *Rio Grande*, one of the transports, and placed Maj. J. L. Powell, surgeon, United States Army, in charge to prepare her for a load of convalescent sick to be sent away. The Surgeon-General telegraphed that the *Olivette* on arrival should proceed with her sick to Boston, which she did. Large numbers of convalescents able to travel were leaving the hospitals every day on furlough. Those from detention hospital were given a medicated bath and provided with a complete suit of new clothing just before going away, and all bedding and effects left behind by them passed through the steam sterilizer. At the general hospital and annex the sterilization of soiled linen from typhoid and diphtheria cases was accomplished by means of formaldehyde gas in a tight, double-lined frame building, erected and provided with a Kny-Scheerer generator.

On the 23d the *Rio Grande*, with Surgeon Powell and a corps of doctors and nurses and supplies, sailed, taking 300 convalescent sick to the military hospitals in New York Harbor.

August 24, heavy rain and wind prevailed during the night, but the tents on frames stood firm and the patients were comfortable. Just sixteen days had passed since the first nail was driven in the construction of hospitals at Montauk, and there were 1,700 beds ready for patients and 1,465 sick under treatment, besides all those who had been treated and sent away. The death rate was remarkably low, notwithstanding the extremely unfavorable condition of many cases as they came from the transports. The sick were receiving better attendance and more supplies than are usually furnished in city hospitals. Physicians, surgeons, and nurses of the highest skill and training were in waiting, and devoted themselves with zeal and energy to their duties. The Secretary of War visited the hospitals on the 24th and 25th, and again on the 30th the President, Vice-President, and party arrived and went through all the wards. The Surgeon-General came later, and under his instructions the sick were transferred as rapidly as possible to other hospitals in the neighboring cities and military posts. Accommodations were offered on all sides, and transports were sent to take as many as were able to be moved.

From the 25th of August to early in September patients came in great numbers from the transports and from camp, many intending to go on sick furlough, which they did at the rate of 200 a day. The capacity of the field hospitals was rapidly increased accordingly up to 2,500 beds, and three division hospitals were organized to accommodate 600 more. The total number of beds sent up from the medical purveyor in New York was 3,300, and other articles in proportion.

August 30, the steamer *Shinnecock* reported to me, and Maj. W. C. Borden, surgeon, arrived with the *San Marcos*. The latter vessel was not well suited to carrying the sick, while the former was splendidly equipped with every convenience and comfort, I therefore transferred Dr. Borden, with his medical officers, nurses, and abundant supplies to the *Shinnecock*, and placed 200 sick on board to go to the military hospitals in New York. This steamer made regular trips thereafter to New York and return every two days, taking from 200 to 300 sick each time.

St. John's Hospital, Brooklyn, sent up two cars, which made several trips with convalescents to that institution. The steamers *Fall River* and *Bridgeport* and other smaller craft came across the Sound and took patients to the hospitals in Providence, New London, and Bridgeport. The transfer of patients and the granting of furloughs continued, and the last of the transports from Cuba having arrived, there were, September 10, over 1,000 vacant beds in the three field hospitals that in the short period of one month, had been constructed and equipped and had served for the treatment of 9,000 patients.

In anticipation of the chilly nights and high winds of September, the Surgeon-General ordered that some of the tent wards should be boarded up and provided with stoves for better protection to those patients who for some time could not be moved. A simple plan for changing the tent pavilion into a frame ward had already been devised, and on September 10 window sash, stoves, hardware, etc., were ordered for 5 such wards, and the construction begun at once. Two of these were practically completed and others under way when my duties at Camp Wikoff having been completed, on September 12, I was relieved to join my proper station by the following order:

[Special Orders, No. 215.—Extract.]

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 12, 1898.

17. By direction of the Secretary of War, Col. William H. Forwood, assistant surgeon-general, United States Army, is relieved from further duty at Camp Wikoff, Montauk Point, New York, and will return to his proper station at the United States Soldiers' Home, Washington, D. C. The travel enjoined is necessary for the public service.

By command of Major-General Miles:

H. C. CORBIN, *Adjutant-General*.

REPORT OF COL. CHARLES R. GREENLEAF, CHIEF SURGEON, ARMIES IN THE FIELD, ON THE SANITARY CONDITIONS AT CAMP WIKOFF, MONTAUK POINT, LONG ISLAND.

[Dated November 1, 1898.]

In compliance with your telegraphic direction I have the honor to submit herewith a report upon "the sanitary condition of the troops at Camp Wikoff since its occupation with statement as to provisions for care of sick," etc.

In view of the fact that my service at this place commenced at so late a period, and I was ignorant of any of the antecedent historical data necessary for making such a report, I called upon the heads of the various departments at the camp, and, also on Colonel Forwood, who organized the hospitals, for statements of their work; these have been compiled in the following report:

In transmitting to me, under date of September 20, 1898, the data which is embodied in this report, Maj. Ira C. Brown, surgeon, United States Volunteers, states:

"I desire first to say that the medical officer in charge of the detention hospital has aided me greatly in obtaining the facts pertaining to that institution. I also desire to thank Lieutenant Durfee, of the Engineer Corps, for information that would be difficult to obtain without his cooperation. I am also indebted to the Signal Corps for kind assistance, and to the various aid societies who have been engaged in relief of the sick.

"It is only fair to say in this connection that the detention hospital has been made a model of its kind under the direction of Major Ebert, and that those in charge prior to his administration did heroic work at a time when there was no opportunity to perfect an organization.

"Major Almy, who had charge of the annex hospital, rapidly perfected his organization, and soon had a model institution, which remained a monument to his executive ability until all the hospitals were combined under the head of the general hospital.

"The success of the general hospital, through which the other hospitals received their supplies and to a certain extent their inspiration, is largely due to the efforts of Major Heizmann, who has been a tireless worker under many trying circumstances.

"Major Thomason, superintendent of wards of the general hospital, has been a very efficient officer, having had charge of the shipment as well as the receiving of most of the patients since he has been on duty here. His work has been so well performed that no accident or even discomfort to the patients has been noticed.

"The officers and contract doctors who have been on duty here in a professional capacity have all made good records for themselves, having worked faithfully and conscientiously for the patients intrusted to their care.

"It is a matter for congratulation that a hospital of this size, springing into existence in so short a time, should have such an able corps of physicians and nurses, and proves to my mind the unselfishness of the individuals connected with the medical department. The same can be said of the nurses, and when I speak of nurses I wish to be understood as including the Sisters of Charity and the trained nurses.

"Personally, I wish to thank you for the many courtesies received at your hands, and trust that the information furnished herewith may be of service to you in determining the success or failure of the medical department at Camp Wikoff."

Water supply.—The following report in regard to the water supply, the pumps, the wells, the piping and hauling of water, the filter plant, etc., is furnished by Col. Willard Young, commanding Second United States Volunteer Engineers:

"The work of supplying water to camp was inaugurated by Colonel Hecker and Colonel Miller, of the quartermaster's department, who had placed Mr. Clinton Smith in immediate charge, practically as superintendent of waterworks.

"Immediately upon the arrival of this regiment in camp, on August 15, a request was made for a detail to assist in laying pipe. A detail of 24 pipe fitters was at once sent out and proceeded to work under the direction of Mr. Smith, reporting to him each day until August 17, when charge of the water supply was turned over to me by verbal orders of Maj. Gen. S. B. M. Young, and Capt. Fremont Hill placed in immediate charge. At the time of my arrival, August 15, the condition of the water supply was as follows:

"A pump had been set up on Fort Pond and a pipe line laid from it to the general hospital, and a branch line to detention hospital, with one outlet at each hospital. Work was just being begun on erecting a tank on the top of the hill a few hundred yards from the pump. In all, about 6,000 feet of pipe had been laid. The pump was in operation, supplying water for all purposes from Fort Pond, and it continued in operation until August 18, when well water was first supplied. At the same time, by an agreement with Colonel Hecker, Mr. C. A. Lockwood, a contractor from Jamaica, Long Island, was engaged in sinking a well at a point a few hundred yards from Fort Pond, near the present camp of this regiment. This was the first well put down, and will therefore be referred to as the first well in this report. It is the one with the greatest capacity, and the one at which the filter plant is located. The agreement with Mr. Lockwood included sinking this and another well, on a site to be selected.

"The first well was connected to the pipes on August 18. It delivered an amount of water satisfactory to Colonel Hecker, and was approved by him. Mr. Lockwood then began to sink the second on a site which had been selected by Colonel Hecker and Colonel Miller. This well was located at the edge of Peters Run, in a place likely to receive the surface drainage of the detention camp and hospital. Seeing the danger likely to result from the use of this well I consulted with Major Meacham, surgeon of my regiment, who strongly condemned its use. I then reported the matter to Colonel Forwood, who also condemned it, and General Young ordered its abandonment. A new site on higher ground was selected, and another well put down by Mr. Lockwood. In driving this well, at a depth of about 35 feet a large boulder was struck. At this depth the well had a capacity of about 80,000 gallons, instead of 500,000 as agreed upon, and the supply has materially diminished since. It was not recommended for acceptance as fulfilling the contract, but was nevertheless accepted by Major-General Young on account of the urgent and immediate demand for water. This completed Mr. Lockwood's agreement with Colonel Hecker.

"Owing to the small amount of water supplied by the second, or Peters Run well, and the great length of pipe line between the first well and some of the camps to which it was supplying water, as well as to the fact that it was not known how long the camp here would be maintained, and that in case of breakdown of the

pump or failure of the first well the camp would be left without water, I recommended that another well be put down.

"A contract was entered into with Mr. C. A. Lockwood to sink another well, to have a capacity of 500,000 gallons per diem, on a location near Lake Wyandanne, beyond all camps, and hence out of reach of contamination from surface drainage. This well was to be sunk for \$1,000. Mr. Lockwood finished work and withdrew his tools from this well on September 9, but the pump was not yet in the well at that time. The well was driven into fresh water at a depth of about 30 feet, and being driven deeper reached brackish water after passing through a clay stratum. The point was therefore withdrawn to where fresh water was found. This well yields only about 75,000 gallons per diem.

"The source of water here is undoubtedly the rainfall water sinking very rapidly through the sandy soil until it reaches a level somewhere near sea level, where it remains. There are in some places strata of earth or clay which cut off the flow in particular places, but there does not appear to be any continuous stratum of such material. The water in its natural condition is wholesome; the sole danger to be feared is that it will become contaminated with the impurities which will by degrees percolate down from the surface. Very little water runs off of the surface during a rain storm; most of it sinks into the soil. Most of the drainage is caught in basins and held to evaporate or slowly percolate downward.

"Not knowing how long the camp would be occupied, and seeing danger from contamination due to the presence of so many men and animals on the ground, I recommended that a filter be installed as an extra precaution against disease. This met with the approval of Major-General Young and yourself, and of the Secretary of War, who on August 30 authorized an expenditure of not more than \$7,000 for this purpose. A contract for the immediate installation of two filters with a capacity of not less than 300 gallons per minute was entered into with the New York Filter Manufacturing Company.

"The elevation of the ground occupied by some of the camps at Montauk Point varies from a few feet to about 100 feet above sea level. The tank erected on the hill a few hundred yards from the first pump was not at an elevation sufficient to make it of any value in supplying water to the camps, and it is necessary to pump directly into the pipes, at a pressure as great as 120 pounds, to force the water to all points on the pipe lines. The tank is filled at night and the water drawn off during the day for sprinkling purposes. Another tank has since been erected and is used for the same purpose.

"On August 19 I divided the work of looking after the various matters intrusted to me among the officers of the Second United States Volunteer Engineers, assigning to Lieut. Col. E. W. Burr and Capt. Fremont Hill the immediate charge of all the work on water supply.

"About 12 miles of pipe lines were laid up to September 15. On these lines there are 178 faucets, with about 477 feet of three-fourths-inch pipe and 37 feet of 1-inch pipe used as connections.

"The water has been partially shut off on a few occasions; once on account of breakdown of the pump installed at the well first put down, and at other times on account of the pipe being stopped up with large pebbles in an inexplicable manner.

"There have been in continual use 11 water wagons hauling water from the wells to the hospitals and to points not supplied with water by pipe lines, and in sprinkling roads in front of the general hospital and elsewhere. Since September 4 these wagons have been under my supervision, and Lieutenant McAndrews, Second Regiment, United States Volunteer Engineers, has had immediate charge of them.

"Owing to the limited supply of water, only the road in front of the general hospital was sprinkled at first, but since the completion of the tanks, which are filled during the night, there has been plenty of water for both purposes."

The following additional statement in regard to the water supply at Camp Wikoff is from the report of Lieut. Col. Charles Smart, made to the Surgeon-General September 10 in compliance with instructions:

"The water supply of the camp and hospitals is taken from a well about 200 yards from the eastern margin of Fort Pond. A free supply was found at a depth of 40 feet below the surface. Two strata of clay—one near the surface, the other at a depth of 25 feet—separate the well water from surface contamination. It is distributed by about 8 miles of pipe, and is on tap in each of the regiments. Two of the regiments, the Ninth and the Thirteenth Infantry, are provided with Pasteur filters in their company kitchens.

"The following tabulation shows the results of a chemical examination of the water by myself on Thursday, September 8, immediately after the samples were drawn:

	Fort Pond water.	Well water.	Tap water.
Chlorin	62.00	3.00	3.00
Nitrites	None.	None.	None.
Oxygen required	.375	.075	.075
Free ammonia	.0025	.002	.002
Albuminoid ammonia	.048	.003	.003

"The figures represent parts per 100,000 of the water.

"The Fort Pond water is unfit for use as a potable water. The other samples are organically pure.

"I have instructed a medical officer to examine this water from time to time to note any change in its character.

"With this satisfactory water supply and the good sanitary condition prevailing in the regimental camps, I have no hesitation in saying that the troops could stay on their present ground in winter quarters without any such outbreak of typhoid fever as has occurred at Camp Alger and at Chickamauga Park."

On September 16 Acting Asst. Surg. Llewellyn P. Williamson made an examination of the water and reported as follows:

"I have this day examined the water supply of this hospital and found it the same as when examined by Colonel Smart last week. It is pure water, albuminoid ammonia being almost entirely absent."

Transportation facilities.—In regard to the facilities furnished for transportation, Dr. Brown states:

"When the first troops arrived at Montauk (the Sixth Cavalry) there were scarcely any means of transporting supplies except that brought by the cavalry outfit. With the Sixth Cavalry came its sick, in the baggage car which arrived at Montauk about 4 a. m. August 8, 1898. There were ten ambulances parked near the station, and with these the sick were taken to what is now the general hospital. At that time there were no tents and no provision whatever for the reception of these men, and the medical officer in charge erected tents and had the sick (some 30 in number) under cover by 11 a. m. the same day. There were no cots, no mattresses, and only one blanket for each man. It was raining at the time and the ground was wet. There was no lumber on hand to put floors in the hospital tents, and consequently the patients were laid on the ground. These men were suffering from different diseases contracted in Tampa, Fla., and which developed on the way to Montauk. The greater portion had typhoid fever, quite a number malaria, a few cases of dysentery, and one of measles.

"There was no food for these men, nor could any be purchased at this end of the line. The medical officer, however, made arrangements on the way here to have milk sent by the first train arriving that morning, and to continue the supply until further orders. There was enough with the sick to last until the supply came.

"The medical officer found the location for the general hospital very early in the morning and before any of the officers here were at the site selected. Early in the morning General Young and Colonel Forwood came to the proposed site and did all that men could do to make the sick comfortable. Here was the first lack of transportation. There was some lumber at the station, but only one team to haul it. There were two carpenters waiting for lumber to go to work. When the officers in charge were able to get the lumber here it was used at once for putting floors in the tents erected, and the sick were transported to more comfortable quarters.

"Slowly the facilities for bringing up the lumber were increased, and also the number of carpenters. From day to day transportation facilities were increased until finally the lumber came in great quantities, and there were nearly 100 carpenters at work, but as the working force increased so did the number of patients. Transports commenced to arrive, and the sick came pouring in all day, and frequently into the night, and only by the constant application to duty by Colonel Forwood were the patients able to be housed, let alone making them comfortable.

"It was thought necessary to get the lumber up if other departments had to suffer, for without a house other material would be of no consequence. As soon as it was possible cots and mattresses were brought up and the patients were placed upon these mattresses and made quite comfortable. It was almost impossible to find transportation for medical supplies and hospital furniture. At first

there were no medical supplies here except those brought by the medical officer of the Sixth Cavalry, which consisted of one medical and one surgical field chest, which had done duty all the way from Tampa here, and were more or less depleted.

"Colonel Forwood had great trouble with the carpenters, who came from some distance and would not remain here over night, but insisted on returning by a morning train, and they seldom got to work before 9 or 9.30 in the morning.

"The quartermaster's department did not show the interest in the matter that the situation seemed to demand. It is not my purpose nor desire to reflect upon the quartermaster's department, but it is only simple justice to say that supplies came to this hospital only by the personal efforts of officers who should have been on duty elsewhere and not compelled to go the quartermaster's office and beg for supplies that everyone knew were badly needed.

"Another great obstruction to getting supplies promptly was owing to the fact that cars came in billed as medical supplies, and when located and opened the boxes were not marked with their contents. Consequently hundreds of packages came to the hospital which were not needed at the time and that have been used very little since. Many of the boxes were so large that there was not force enough at times to handle them. It would seem upon reflection that anyone intrusted with packing of supplies of this nature would see the necessity of having boxes not larger than two men could handle and of having their contents plainly marked on the outside.

"The story of transportation could be made a volume in size, but it can be covered in a single statement, and that is, that so far as this hospital is concerned the service rendered by the Quartermaster's Department up to the beginning of September was very poor."

Hospital construction.—The hospital construction was under the charge of Colonel Forwood, who worked hard all day and frequently far into the night, using every effort at his command to hurry along the building of the hospital. He was greatly handicapped in this work, owing to the lack of transportation and material for building purposes. The selection of ground for tentage was looked after by him personally. His desire to make his hospital a model one was appreciated by all who were on duty here, and his aim to make it a monument to the success of the Medical Department of the Army has been realized.

The success of this great hospital is due entirely to the efforts of Col. W. H. Forwood.

Surgical wards and work.—Colonel Forwood, in his plan for the construction of a hospital, laid out one row of tents for a surgical ward, one tent for disinfecting, one tent for giving anæsthetics and preparing surgical dressings, one for operating, and three for the reception of patients immediately after operation, and another pavilion of twelve tents for convalescent surgical patients.

The surgical wards were models of modern field equipment, the operating tent being provided with everything essential to asepsis and to facilitating operative procedures. An especial diet kitchen was completely equipped. The nursing was done by Sisters of Charity who had been specially trained in their surgical work, and the selection of supplies and apparatus was carefully made. The whole section was organized by and under the charge of Lieut. Col. Nicholas Senn, chief surgeon, United States Volunteers, who had for assistants Major Adams, chief surgeon, United States Volunteers, and Acting Asst. Surg. H. S. Greenleaf, United States Army. About 115 cases were operated on, with no deaths. As I understand that Colonel Senn is to publish the result of his work in these wards, I prefer to leave a description of the surgical work to him, merely adding that so far as my observation went the results show that it was the perfection of modern field surgery.

Annex hospital.—The general hospital, comprising 130 ward tents, and having a capacity for 780 patients, was soon found inadequate to meet the demands made upon it, and an annex, comprising 106 tents, and affording additional capacity for 636 patients, was commenced and completed in ten days. This was found to meet emergencies for a time, but it soon became evident that still more hospital room would have to be provided. Consequently a second annex was built, which accommodated about 400 patients, making the total capacity of the general hospital and its annexes nearly 1,700.

The work of the female nurses at this hospital has proven their worth for this particular service. They entered upon their duties with great enthusiasm, and while some of the male nurses complained of the amount of labor they were compelled to perform, there was never a complaint from the female nurses on account of their work or on account of the accommodations afforded them for rest. To them must be credited in a great measure the low death rate in this hospital, for on no occasion were the patients left a moment or neglected, and in this way medical help was summoned and many a patient received aid just at the time to save his life.

Total number of sick passing through hospital.—The records of the hospital show the total number of sick passing through the general hospital up to September 17, 1898, to have been 6,564; through the detention hospital up to the same date, 1,640; and those passing through the division hospitals brings the number of sick handled in the hospitals in this camp up to about 10,000. Estimated number that will pass through the general hospital, 7,264. Of course this does not include the furloughed men who pass through the hospital, which number several thousand. The above figures include only those who received treatment and were regularly admitted to the wards.

There were present 720 patients in the general hospital at the time the above statement was written.

Hospital staff.—The total number of medical officers, comprising commissioned regular and volunteer surgeons, and contract surgeons, on duty while the hospital was at its greatest capacity, consisted of about 40. In the early part of the establishment of the hospital the hospital corps comprised 1 hospital steward, 1 acting hospital steward, and about 60 hospital-corps men, which was later augmented by the addition of 2 hospital stewards, 9 acting stewards, and about 60 additional privates. The total number of female nurses since the establishment of the hospital averaged about 100; Sisters doing duty as contract nurses also about 100; contract male nurses on duty at the hospital averaged about 50. In addition to these there were about 15 contract cooks who were on duty at the general hospital. This estimate includes all those on duty at the annex hospital.

Detention hospital.—The following statement is from Acting Asst. Surg. H. C. More:

"This hospital was opened August 14, 1898, and I continued alone and in charge till August 18, 1898, when I was relieved by Captain Winter, having at that time about 85 patients, with no deaths. I then took charge of the quarantine tents until August 25, having exclusive charge of the five yellow-fever suspects, all of whom recovered. On that date the quarantine was raised, and I returned to duty in the camp. I took charge of half of the second row for one day and then of row 1, having 120 beds, all full, and also of the officers' pavilion August 28, and of half of row 8 August 29, other surgeons relieving me. On about August 31 my patients were moved to Pavilion G, where I still am.

"During this time I have treated patients as follows: Until August 18 about 85 patients, all here when I went to quarantine; August 18 to 25, 5 patients, all since recovered; August 25, about 55 patients in row 2, turned over to Dr. Carson; August 26 to 28, row 1 and Pavilion A, turned over to other surgeons, about 125 in all; since August 28, about 110 cases, of which 24 were sent to New York, 8 to general hospital, and the balance sent on furlough, with 2 dead; total 295 cases. Sent to other wards, 184; sent to other hospitals, 32; dead, 3; furloughed, 76."

Captain and Assistant Surgeon Winter, United States Army, was placed in charge of the detention hospital August 17, 1898. He submitted the following statement:

"At that time there was 1 physician in charge, and 6 Hospital Corps men. Dr. H. G. More and Dr. W. R. Booth, with myself, constituted the medical staff for the next two days. There was no organization at the time I joined the hospital, although Dr. More had worked earnestly and faithfully to provide for the needs of some 60 patients. The kitchen was of ample size and range capacity, but for three days after taking charge there were no cooks save a few pronounced amateurs and neophytes in the culinary art. Fortunately the supply of prepared foods (cereals, etc.) was large and the sick were fairly well nourished. Of drugs there were almost none, most of the very essential articles being lacking. All of this was remedied the following day, when a good supply of all essentials, including two cooks, came from the general hospital, where all the officers cooperated most heartily with me in the effort to provide suitable supplies for the sick. During the next few days the accommodations of the hospital were materially increased by the very efficient work of the engineers under the command of Captain Cook. They pitched a number of hospital tents, set up bunks, and by putting in an abundant water supply solved a problem which had hitherto been a grave one. The increment of sick at this hospital was of the most uncertain character. One afternoon, with 6 Hospital Corps men, including cooks, to aid me, I fed 170 men of the Seventy-first New York Volunteers, who had just come off a transport and who clamored for food with the combined importunity of an India famine and a nursery. Fortunately there were some prepared soups on hand (the gift of Mr. Howard Townsend, representing the Red Cross), and with these and some bread I succeeded in staying the clamors of a lot of men who were eager as only a dearth of food can make men eager.

"The details of such a situation can scarcely be elaborated on paper. I could amplify the arrival of sick officers and men and point to the incoming of ambulance after ambulance, each with its full complement of sick, arriving from 10 p. m.

to morning, with no notification of their incoming and no provision for their reception. The provision of one blanket became a study, and to exercise discrimination in their distribution was tantamount, in the soldier's opinion, to a personal assault upon his rights. Transports bearing sick were constantly arriving at Montauk from infected ports, and the element of detention was insisted upon in no unequivocal terms by the authorities. To one familiar with the multifarious details of a field hospital, and cognizant of the time necessary to the establishment of such an institution, it will not seem unreasonable or even unfitting that accommodations should be crude and simple for the first few days. The supplying of kitchens, cooking utensils, cooks, tents, beds, mattresses, pillows, sheets, pillowcases, buckets, basins, commodes, bedpans, urinals, lights, dishes, tableware, towels, and the thousand and one other things necessary for the comfort of sick takes time, and when the recipients are dependent on a one-track railroad the difficulties are enhanced. I have distinct recollection of the great efforts put forth by the chief surgeon (Colonel Forwood) to provide for the needs of this hospital, and it was due to his untiring work that the hospital was in good running shape when I left it on the 23d of August."

Dr. J. F. Cronin, acting assistant surgeon, United States Army, was left in charge of the detention hospital after Captain Winter left, and remained in this capacity until August 27. Maj. R. G. Ebert, surgeon, United States Army, took charge of the detention hospital August 27, 1898. He states:

"At that time the hospital consisted of 60 single hospital tents and 4 pavilions of 6 tents and 1 fly each, as wards for patients, with 4 single tents detached some distance as an isolation ward; an administration pavilion of 2 tents and 1 fly; another pavilion of 3 tents and fly as bathroom, storeroom, and officers' dining room; a frame kitchen with 2 ranges; an incomplected disinfecting plant; a single wall tent for morgue; besides tents for officers and attendants.

"There were on duty 6 acting assistant surgeons, 41 privates of the Hospital Corps and privates who belonged to volunteer organizations whose status was undetermined, there being no orders or descriptive lists at this hospital, 3 civilian cooks, and 6 civilian and volunteer nurses. Supplies, implements, and medicines were limited, many necessary articles being entirely missing. The food appeared to be the regular army ration supplemented by a supply of milk. Clothing for issue to patients consisted of a small quantity of articles of uniform and some few Red Cross supplies.

"Physicians and nurses were overworked, and the wants of patients, in spite of best efforts of all, were not always promptly met. Records did not exist, except a directory of patients, in which some information relative to arrival and disease was noted. Stationery, books, and blanks there were none. No reports were rendered by the attending surgeons, and but a very limited number of 'registers of patients' were in use.

"Requests were made for a detail of 50 men from the line to assist in the work of attending to patients. This was filled imperfectly, and many of the men reporting absented themselves, while others, being themselves convalescents, became sick, 14 of the 40 present on second day after reporting being sick, as were also 10 of the Hospital Corps.

"Additional surgeons, entirely unfamiliar with army work and methods, reported the following week. Hospital Steward George W. Muller, United States Army, reported for duty on the 28th, and of his services I can not speak too highly. Being informed that no hospital stewards or acting hospital stewards were available, I requested and was given the detail of 3 privates of the corps in that capacity, and their services were of value.

"Female nurses under Miss L. A. Hughes, M. D., reported for duty on August 28; that day 9. The succeeding days these were increased by arrivals from New York, Michigan, and Massachusetts. The following table shows the status of hospital in various respects on the date I assumed charge; on the date of the greatest number of patients; on the date when orders were received to admit no more patients, and at present date:

	Aug. 28.	Sept. 5.	Sept. 11.	Sept. 17.
Surgeons.....	6	16	18	6
Hospital Corps	41	42	45	a 45
Male nurses	6	7	7	5
Female nurses		48	57	26
Cooks, civil	3	4	4	2
Laborers		46	44	8

a Includes 1 steward, 3 acting stewards; the others privates.

"Total number of patients received in hospital, 1,850; died, 62; transferred to other hospitals, 415; furloughed and sent to regiment, 1,107; remaining (September 17) 60.

"A diet kitchen was commenced on August 29, with 2 oil stoves and tomato cans as utensils. As rapidly as possible this was increased and now occupies a pavilion of 2 tents and a fly; there are in use 2 ranges and 6 persons are employed. I can not say too much of its value, and Miss Fennessey, in whose charge it was placed, is worthy of the highest praise.

"The policing of grounds was at first under charge of Lieutenant Rowell, Fifth Cavalry; afterwards Lieutenant Jackson, United States Volunteer Engineers. While the work of construction was continued (September 13), it was difficult to keep grounds in the best of shape; but after the arrival of sufficient noncommissioned officers to properly oversee employees, the work was done satisfactorily.

"Medical supplies were obtained from general hospital, and after the 4th or 5th of September were ample. Previous to that time there was a shortage in some drugs and at times the preparations were not such as were desired by the prescribing physician.

"Stores for the sick were obtained by purchase, and also from the Red Cross and many organizations for the relief of soldiers, and gifts of private individuals. It is difficult to tell how much was thus donated. The lack of clerical force and competent men to take control rendered an accounting of property impossible. It became the first and only aim to take care of the sick at no matter what expense of material or labor. The unpreparedness of this hospital to care for its sick at first and the constant building operations necessitated a vast amount of discomfort to patients and loss of time and labor to attendants; especially was this due to the system of single hospital tents.

"At present there is no complaint to be made excepting lack of noncommissioned officers and proper clerical assistance. It is only by working from 5 or 6 o'clock in the morning till late at night that progress can be made in straightening out records, which must be so valuable in the future to Government and patient; and here again must I give credit to Steward Muller, who, familiar with the papers of the medical department, is the only one competent to do this work besides myself of our present force.

"In conclusion, permit me to call attention to the magnitude of the task considering the limited amount of properly instructed material to do the work. A command equaling a regiment, a time of emergency, with more or less discordant elements, to be fed, clothed, cured, and furloughed is a difficult task to accomplish within the space of a month, and the many imperfections must be given the benefit of this excuse. To Dr. C. M. Lee, whom I appointed executive officer September 1, and to the many willing volunteer aids in the work, I desire to give this token of my appreciation of their services."

Construction and equipment of steam laundry.—The provisions made in connection with the laundry work of Camp Wikoff are very fully set forth in the following statement of Capt. G. L. Goodale, assistant quartermaster, United States Volunteers:

"I arrived at Montauk at noon August 12, 1898, to take charge of the work of constructing and equipping a steam laundry for hospital work.

"On the morning of August 13 location for building was selected at a point southwest of the infantry camp, between Atlantic Ocean and Fort Pond; this place being chosen that fresh water for laundry work might be drawn from Fort Pond and refuse water conveyed to the ocean, thus avoiding all danger of infection from any work done. On this date I made contract with American Laundry Machinery Company, through their New York branch, for all necessary machinery to fully equip a laundry capable of doing the work for all hospitals—general, detention, and division. Price to be \$3,000, they to place the machinery in building in good running order in nine working days after building was ready and machinery had arrived there. In the event of failure on their part to do the work in the specified time it was stipulated and agreed that they should forfeit \$50 for each and every day's delay. Arrangements were made by Colonel Hecker with Mr. Hyde, of Grace, Hyde & Co., for erection of building.

"August 15 the greater part of lumber for building arrived at wharf, but as all wagons possible were being employed in transporting troops and baggage, arriving from Cuba, to camps, it was not until the 17th that any was teamed, and then only a small quantity. Not until the 21st was all the lumber and materials for building upon the ground.

"August 18 carpenters began work in a small way, and on 19th sills for building were laid.

"August 22 I notified the American Laundry Machinery Company that building would be ready for machinery Wednesday morning, August 24.

"August 24 machinery arrived at railroad station. Mr. White, chief engineer of company, and 3 assistants came to place same in position. Owing to lack of transportation, delay occurred in getting machinery to building, the last piece arriving on the afternoon of 26th.

"September 1 received authority from Quartermaster-General to employ civilian laundrymen.

"September 3 started work, all machinery having been put in place in running order completed on the 2d. Owing to the difficulty in getting employees to come here from New York, had only 5 men of the necessary force of 12.

"September 4, after working one day, it was demonstrated that the pump put in by the contractors would not give sufficient water supply from the location of pump house near the shore of Fort Pond. I at once wired the company that a larger pump would have to be supplied. On the 8th a new one arrived with men to put it in position. Change of pumps and laying of larger steam pipes to pump house completed on September 10.

"September 7, employees arrived from New York, completing requisite force—10 civilians, 2 detailed men.

"Water is obtained through 425 feet of 1½-inch iron pipe from Fort Pond, and refuse water conveyed to ocean through 650 feet of 3-inch pipe. Pipe furnished and laid by Second Regiment Volunteer Engineers, Colonel Young commanding.

"Handicapped though the work has been by delays caused by want of employees for four days, and short supply of water necessitating many stoppages from September 3 until September 10, fair progress has been made; from September 8 to September 19, inclusive, 23,670 pieces of work were sent from laundry to different hospitals.

Medical supplies.—So soon as it was determined by the Government that a camp should be made at Montauk Point, the Surgeon-General gave orders to the medical supply officer at New York to ship to that point articles of every kind that might be necessary to equip the hospitals in the most thorough manner, and to spare neither labor nor expense in the work.

He instructed Colonel Forwood to call by telegraph for additional articles, and directed the medical supply officer to honor all such requisitions without delay or formality.

A vast amount of property was thus accumulated, and although the large and numerous hospitals were fully equipped there was at the time of my visit a sufficient quantity of surplus stores to have equipped another hospital of equal size.

An idea of the amount of this kind of property that was furnished by the Medical Department may be gained from the fact that of beds and bedding alone there had been shipped 3,452 cots, 3,000 mattresses, 18,254 sheets, 7,675 blankets, and general medical supplies such as drugs, hospital comforts, surgical instruments and appliances, furniture, table and mess ware, and other miscellaneous property for 12,000 men, comprising no less than 54 carloads of supplies. In addition to this, there were sent for the division field hospitals 400 cots with bedding complete, all without formal requisition, but solely on the order of the Surgeon-General, from Washington. Five thousand dollars of public money was also sent to a medical officer, appointed as disbursing officer, for the purchase of such property as was not on the supply table and for the payment of employees.

Food supplies.—In regard to the supply of food in the early days of the camp, Dr. Brown states: "That at the beginning the food was scanty and very poor when it reached the hospital. Meat, for instance, had to be sent up here in ambulances that were used for transporting the sick, and was then thrown on a crude table covered with dirt and often exposed to the sun, so that it soon became necessary to bury it. When we were able to cook it it was so full of grit that it took a strong heart to be able to masticate it.

"Milk came spasmodically and usually soured late in the afternoon, leaving us to depend upon canned milk for our night supply.

"For three days there was very little food of any kind except milk, which fortunately supplied the patients, and the help could get along under the circumstances. One day we would be out of meat, the next day out of bread, and so on; when we had a supply of one thing we were all out of the other. Here, too, was the lack of transportation plainly visible. From about the 18th of August the supplies came in in large quantities and very good in quality, so that latterly we actually had more provisions than could be used. And the canned goods and other articles not perishable accumulated so that we have quite a reserve stock on hand."

Sanitary work done on grounds about general hospital.—The following is a report of the sanitary work done on the grounds about the general hospital by the Second United States Volunteer Engineers, under the general supervision of Maj. Franklin A. Meacham, surgeon Second United States Volunteer Engineers, by order of Col. Willard Young, commanding Second United States Volunteer Engineers:

"On the first visit of the Secretary of War to this camp, August 24, he found the grounds about the general hospital in a deplorably unsanitary condition. Desiring to remedy this, he, together with Maj. Gen. Joseph Wheeler, called Col. Willard Young in consultation as to the best means of accomplishing this much-needed reform. As a result of this conference the Second United States Volunteer Engineers were charged with this, doing the work.

"August 24 orders were received by me from Col. Willard Young to proceed to the general hospital and take entire charge of the sanitary work about the grounds. This was in no way to interfere with the internal management of the hospital. All work engaged in by the several details of the regiment, except those laying the water pipes and the laying out of the infantry camps, was to be suspended, and all efforts to be turned toward the rapid accomplishment of this much-needed sanitation.

"Accordingly, August 25, at 7.30 a. m., I proceeded to the general hospital with 6 officers and 150 engineers and inaugurated the work. Later in the day the Secretary of War and Maj. Gen. Joseph Wheeler visited the grounds, and reiterated the instructions given me by Col. Willard Young: Use every possible effort to remedy at once the existing insanitary condition; to continue in charge and see that the grounds were kept in order, and that all necessary help would be furnished; to use freely their names in ordering any necessary supplies or procuring needed assistance. In accordance with these instructions, Lieut. Oscar S. Durfee, Second United States Volunteer Engineers, by order of Colonel Young, reported to me with 67 quartermaster laborers and 2 foremen, with 10 wagons and 7 dump carts on the following morning. These laborers took the place of the engineers as soon as their labors had been completed, and have since carried on the general work under the immediate supervision of Lieutenant Durfee, assisted by 4 non-commissioned officers of engineers. This work was greatly facilitated by large details of men and wagons sent from the cavalry regiments.

"In looking over the ground I found that there was the greatest need for commodious and comfortable latrines, placed at a safe and respectable distance, and the immediate stoppage of the soiling of the surface of the ground, in many instances through the carelessness or ignorance of the attendants employed in the wards. The latrines already in use were small and placed only a few feet from the wards. Those at the northeast corner of the main hospital were placed on swampy ground and could not be dug over 2 or 3 feet deep. Similar latrines were placed at the northeast and northwest corners of the main hospital on high and dry ground. These latter were on the main approach to the hospital. Others were located on the east and west sides of that part known as the annex. These latrines were foul smelling and the men using them plainly exposed to public view. They were so small that they could not accommodate the great number of men, and in consequence the surface of the ground around about them was often befouled. Two men only had been employed in digging, filling, and disinfecting these latrines in a desultory way. From the constant necessity of moving the latrines the ground around about was rapidly becoming honeycombed and a great source of infection. Screens were at once built around these latrines, which were used while other and more comfortable ones could be constructed. The place chosen for these new latrines was to the north of the main hospital, where the necessary depth of 8 to 10 feet could be had. To reach these it was necessary to build a plank walk, with railings, 270 feet long across the swamp. Here latrines were built as follows:

"A latrine consisting of two sinks, each 100 feet long, 8 feet deep, and 4 feet wide, dug parallel to and 6 feet from each other and covered by light frame buildings 7 feet in front, 5 feet high in rear, facing each other. A board fence 3 feet high between the two sinks gave the necessary privacy and economized lumber, the front of the buildings not being boarded up. The seats were the ordinary holes, 10 inches in diameter and 2½ feet center to center. At each end a lateral trough 6 inches wide and 4½ feet long, leading into the sink, served as a urinal.

"The latrine was economical and served its purpose admirably. A hinged door on the bottom rear gave easy entrance for disinfectants. The building was strong enough to permit being moved to new sinks as often as necessary. Suitable openings were left for emptying bedpans, etc.

"Other and similar latrines were built for the annex, the officers, and nurses. Six laborers were assigned to the care of these latrines, keeping the seats and

floors clean, and attending to the disinfection and the filling in of the sinks. All sinks were disinfected every hour during the day in the following manner: A liberal amount of lime was thrown over the fecal matter and over this fresh dry earth. On top of the dry earth was thrown a layer of copperas. In this way the fecal accumulation of the next hour fell in disinfectants and was in turn covered with lime and earth. There was scarcely any odor when properly attended to. This method took the place of the individual disinfection and covering of stools with dry earth as recommended by most sanitarians as the best, but in this special case impracticable owing to the sick and weakened condition of the men.

"The ward attendants, in many instances private soldiers with no knowledge of the modes of conveying infection, were in the habit of emptying bedpans and vessels on the surface of the ground about the latrines, in the roads, gutters and swampy pools which surrounded the hospital. The garbage cans and barrels placed between the wards as receptacles for table refuse were even used as dumping places for the contents of bedpans and commodes. It was the custom also of these same attendants to wash these vessels in the swampy pools. These methods of conveying infection not only prevailed openly in daytime, but under cover of night were even more pronounced. To put a stop to these nuisances, on August 29 I applied in person to Maj. Gen. S. B. M. Young for a guard. One officer and 30 men reported to the hospital for guard duty and ten posts were stationed about the wards. In this way these insanitary offenses were stopped and the ward attendants made to empty the stools properly into the sinks.

"In order that there should be some place for cleansing the soiled bedpans, etc., a water plug was placed on line with the latrines and a hole 6 feet square and 10 feet deep was dug. This was covered after the manner of a "hopper," in which the vessels, etc., could be cleansed and the hole kept thoroughly disinfected.

"Garbage from the kitchen and wards, which was heretofore hauled to the beach in front of the First Division infantry camp, was now hauled to large refuse pits, properly disinfected, and buried. So great was the accumulation of refuse that it was some days before any impression could be made on its removal. This refuse as far as possible was separated into the destructible and burned, such as clothing brought from Cuba, such ordnance stores as haversacks, belts, etc., boxes, etc. The indestructible was buried. All materials left after burning were raked together and buried.

"Soiled and infected bed linen, blankets, mattresses, and pillows were thrown out and had been piled up under each ward. They were wet and moldy, foul smelling, most obnoxious to the sight, and a source of infection to the occupants of the wards above. It was now determined to haul the bed linen to the laundry and burn the infected bedding. At that time this was the only feasible method of disposing of this linen. The completion of the laundry being delayed, this infected material accumulated there in large quantities, which would have been a great source of infection had it not been properly ordered burned by Maj. Gen. S. B. M. Young, September 10. After this date no linen was destroyed, excepting cast-off clothing, as the laundry was now able to take care of it. All linen and blankets that had been laundered were delivered to the hospital under our detail.

"On account of the great amount of dust, on August 29 I obtained from Maj. Gen. S. B. M. Young an order for sprinkling carts. From this time on the entire grounds and wards about the hospital were free from dust.

"Hitching posts were constructed at a distance from the hospital, and orders issued that all horses and conveyances should be kept out of the avenues about the hospital headquarters and away from the kitchens, where they were wont to congregate.

"In addition to the building of all latrines, Capt. Barton F. Dickson, with 3 officers and a detail of 12 noncommissioned officers and 48 men, constructed all carpenter work. The kitchen of general hospital was properly floored after 12 inches of ground, indescribably foul by soakage, was removed. Platforms and troughs were built around all water plugs and filled around with sand. Three hundred feet of troughs were made for carrying away waste water. Large boxes were placed between wards as receptacles for refuse and soiled linen. Captain Dickson and detail were at work from August 25 to September 4.

"Capt. A. W. Cooke, with detail of 3 noncommissioned officers and 35 men, improved the roads leading to the hospital as well as those around about the hospital. Many swampy places were filled in with sand and box drains put in where necessary. The hospital tent wards were trenched. The soaked earth around kitchens was removed, filled in with sand, and drained. Captain Cooke and his detail were at this work from August 23 to September 5.

"Sufficient force for the policing and the sanitary work of the detention hospital and camp had not been provided. The pits were placed too near the

hospital, and the soiled and infected linen was thrown upon the ground between the wards, nor was there any surface or hydrant drainage. From September 8 to September 25 Lieut. C. F. Jackson, Second United States Volunteer Engineers, was placed in charge of this work under my supervision. New latrines were built and pits for garbage from kitchen and wards were dug at a safe distance from hospital. More garbage cans, and receptacles for soiled linen and paper were procured. Grounds about hospital were thoroughly policed, and lime sprinkled freely where refuse had been thrown. The latrines were now disinfected on the same plan as at the general hospital. All garbage was hauled to refuse pits and buried. The destructible refuse was burned and the indestructible buried. Drains were constructed for surface and hydrant water.

"The general policing of the various vacated camps was done by Lieut. Arthur T. Ballantine and quartermaster laborers from September 19 to 23.

"In a few instances only were any of the camps left in a clean and sanitary condition. This was notably so in the case of the artillery in the detention camp and the First and Twenty-fourth Infantry. The camps vacated by the regular troops were in an average sanitary condition only, while the camps left by the volunteer regiments were in a deplorable state. Here were to be found numerous infractions of the elementary principles of sanitary science, the natural causes of infectious diseases. There was evidently no attempt at policing. In many cases it was found the unoccupied tents were often used as latrines. Paper, boxes, ordnance stores, etc., were scattered in all directions. Some tents were trencched, others not. Wagonload upon wagonload of commissary stores and quartermaster stores were left upon the ground.

"In some camps the sinks were not dug over 2 feet deep; in other camps they were using buildings which rested on the surface of the ground and no holes dug at all. No effort was made to take care of their sinks in any manner whatsoever. Refuse and garbage were scattered over the surface of the ground or left uncovered in the garbage pits. The camps of the Seventy-first New York and Eighth Ohio, Thirty-third and Thirty-fourth Michigan, First District of Columbia, Eighth Massachusetts, and the Rough Riders were left in the above deplorable insanitary condition."

Protection against fire.—Large barrels and galvanized iron tanks, filled with water, were placed at the front, rear, and sides of each ward, into which a quantity of salt was thrown, for the double purpose of keeping irresponsible persons from using the water for other purposes and increasing its efficiency in extinguishing fire. Inside each ward were placed three brass fire extinguishers, which were easily handled and could be carried by a child and operated by simply inverting the cylinder. Each will throw a stream of water one-fourth of an inch in diameter 30 feet and will continue in operation for ten minutes. These, together with the surveillance of outside sentinels and the constant watchfulness of those on duty in the wards, both day and night, it is believed affords positive assurance that there is no danger of spread of fire. The wooden buildings for the sick are provided with a door at each end and two on each side for exit in case of fire. Axes are kept under guard in a central location so that they may be had at any time in case they are needed. The reason they are not distributed among the wards is that it is feared that patients in their delirium might obtain possession of them if they knew of their whereabouts, as we have found that many of the delirious patients are anxious to get hold of weapons.

This protection is not only for the wards, but for the storehouses as well, where the Government property is kept. In a word, every precaution has been taken to insure our safety against fire.

Policing of the camps.—With regard to the protection afforded by the provost-marshal in policing the camps, etc., Dr. Brown submitted the following statement:

"Capt. George F. Chase, Troop D, Third Cavalry, was appointed provost-marshal, and his guard was so effective that it was impossible to get in or out of detention hospital without a pass from the proper authorities. When visitors and others came to the general hospital in great numbers, Captain Chase gave us great relief by holding up people who had no other business about the hospital than sight-seeing. It was not only in the protection afforded the hospital that Captain Chase assisted us, but I might say in every way. His duties were constantly enlarged, until, if anything was wanted from about the station, and wanted badly and quickly, all that was necessary to do was to notify Captain Chase, and it was forthcoming at once. This is mentioned because it was so unusual at times to get prompt attention, and to receive supplies badly needed, from any of the other officers on duty about the railroad yards.

"Part of the work of the provost-marshal was looking after the sanitary conditions of the whole camp, which was done in a very satisfactory manner. In this connection Captain Chase says:

"It being part of my duty to look after the sanitary conditions and to see that the policing was properly done, I am warranted in saying that, with the exception of the Eighth Ohio, the Seventy-first New York, and the camp of the Rough Riders, it was perfectly done. The Seventy-first New York, the Eighth Ohio, and the First Volunteer Cavalry left Camp Wikoff and their camp sites in a filthy condition. It was necessary to employ a large gang of men for several days to get these camps cleaned up and in sanitary condition."

Sanitary condition of troops at Camp Wikoff.—In regard to the sanitary condition of the troops at Camp Wikoff, Maj. H. S. Kilbourne, under date of September 17, reported as follows:

"The Fifth Army Corps arrived at the camp by transports from Santiago de Cuba during the latter days of the month of August and the first two weeks of September, 1898, having about 1,500 men on sick report, in addition to those transferred from the general hospitals at Siboney—in all about 2,000 sick, with increasing numbers.

"For the reception of the sick a detention hospital and a general field hospital were established at this station, with a capacity sufficient to accommodate the more serious cases of illness and abundant supplies.

"In order to provide for the less serious cases of illness among the troops, three additional field hospitals were installed by the division surgeon of the Fifth Army Corps, with a capacity of 180 beds each, new tents being obtained from the depot quartermaster at Montauk for this purpose, and furniture and medical supplies from the purveying depot in New York City.

"From the supplies of this hospital necessary medicines were issued to regimental surgeons as they were required.

"I assumed the duties of chief surgeon of the Fifth Army Corps on September 6, 1898, since which date there has been no lack of supplies and accommodations for the sick of the command.

"Owing to the large number of sick to be provided for, and to relieve the congestion of the hospitals, the transfer of sick soldiers by rail and transports to other points and the furloughing of convalescents has been regular and continuous since the above-mentioned date.

"The movement of the troops to other stations has been in progress for the past ten days. At the present time a majority of the troops are arrived or en route to other stations, and there are remaining in the hospitals a comparatively small number of the sick.

"The site of the camp is, in my opinion, well chosen. The locality is accessible by both land and water transportation. Proximity to the sea, an open, rolling, and elevated country, and an abundant supply of pure water are afforded here.

"The conditions to be dealt with here are unprecedented. The victorious army returning to the United States from Cuba was greatly debilitated by the exposure and fatigues of the campaign. A majority of both officers and men are enfeebled by the incessant labors of an active campaign in a tropical climate. And while now, after the fact, it is not difficult to perceive how the contingencies of war might have been better appreciated and met, I am able to say with confidence that all resources available in this place for the mitigation of the suffering of the troops have been continuously employed.

"Timely aid has been afforded here by various organizations and individuals, the Red Cross Society, the Massachusetts Aid Society, the Christian Brothers, and especially the service of the special diet kitchens, organized and conducted by prominent women. All these have been found valuable adjuncts to the Army of a nation whose custom it is to declare war and afterwards prepare for war."

Maj. H. S. T. Harris, on the same date, also reported on the sanitary condition of the camp as follows:

"I arrived at Montauk Point August 17, with the First United States Cavalry and a battery of the Fourth Artillery, in the steamship *Matteawan*. There were some 70 men on sick report in the ship, and the whole command was anæmic and wasted from malarial infection in Cuba to a greater or less degree.

"We found well-equipped hospitals already established for the reception of our more serious cases of illness (some 20 in number). The command found tentage already pitched and floored for its reception in the detention camp, so that there was no work devolving upon them save the preparation of their own meals.

"Upon my release from detention camp, I found that the camp for the division was pitched before the arrival of the troops on a most excellent site as regards

soil, drainage, situation, etc., the men being again spared the labor of making their own camp. The utmost care was used in preserving the cleanliness of the company kitchens, company streets, and the camp site in general, a police officer having been appointed in each brigade with full powers to report upon and correct any laxity in individual troops or regiments. Both quicklime and dry earth were used in the men's and officers' latrines. The water supply has been excellent, in my opinion, coming from deep wells lying below one or two impermeable strata of clay.

"Bed sacks were provided by the quartermaster's department and filled with straw. Many of the men constructed bunks for themselves out of lumber furnished by the engineers. New clothing was drawn in the usual manner to replace the worn articles brought from Cuba and Tampa, and free issues have been made to sick men leaving on furlough or going to hospitals.

"The regular ration has been added to by extra issues of ice, milk, eggs, oatmeal, canned soups, canned goods, and many other articles. These things, aided by many donations from various societies and individuals, have made such a profusion of diet, that in many instances the troops have refused to draw all their fresh meat and bread.

"Montauk Point is an ideal site for what has been really a malarial convalescent camp, swept as it is by refreshing ocean breezes, and presenting no exuberant vegetation to act as a means of fresh infection.

"The greater proportion of the sick at this date have either gone home on furlough, been sent to hospitals, or returned to duty. The remainder of the command has not fully recovered its former health and vigor, but is making as rapid progress as can be expected in view of the virulence of the malarial infection to which it has been exposed.

"Some cases of typhoid fever have been brought here from Southern camps, some few from Cuba. All suspicious cases which have come under my notice have been sent to general hospital, so that I am unable to state definitely how many, if any, cases have originated in this camp. Certainly, every practicable precaution in the matter has been taken.

"The medical care of the sick in this camp has been most careful. Both medical and line officers have taken the greatest interest in the matter, and delicacies have been furnished not to be surpassed in any hospitals in the country. Neither labor nor expense has been spared. So much has been furnished in the way of diet and help in its preparation (diet kitchens), that of the large sums available for this purpose only a small proportion has so far been used."

The following "Brief memorandum of the impressions produced as a result of my observations since I reported at Camp Wikoff, August 20," is furnished me by Maj. J. C. Powell:

"1. *As to the condition of troops on their arrival.*—From observing the officers and men on landing from transports and very soon afterwards in camp, their general appearance was that of men who had just gone through an extraordinary tax on their physical powers. Men who were not actually on sick report were wan, sallow, and greatly reduced, and all the conditions seemed present for the quick development of acute paroxysms of disease under but mild exciting causes.

"2. *Effect of arrival at Montauk Point.*—There was no instant improvement in their condition as result of the change from the hot and exhausting equatorial zone to the mild and health-giving atmosphere of Montauk Point that prevails during the summer season. What change has taken place has been gradual, for to the conditions of disease brought along with them was added, as has just been suggested, that of thorough exhaustion. With the seasonal changes taking place now, many cases have been seen where disease had been lurking in ambush, so to speak, but with the advance of autumnal chill and damp it has been unmasked and developed into acute paroxysms.

"3. *Capability for the performance of duty.*—It would be impossible to express an accurate opinion as to the amount of disability, but it was unquestionably very large, and even among those who were not on the official sick report I do not believe over half were equal to the proper performance of all their duties. Aside from the effects of a campaign, which it is agreed was exceptional in its demands upon the physical powers of officers and men engaged, the disabling character of the diseases from which they suffered—malarial and typhoid—is to be borne in mind on account of their prolonged effect, as it requires in a majority of such cases many months before the subject is able to shake off entirely the profound toxæmia that results.

"4. *Care of sick and well.*—Nothing more could have been done under the circumstances. No more eligible site, in my judgment, could have been selected as

a camp for the command than Montauk Point, limiting this remark, however, to the summer season. The rapidity with which hospital accommodations were prepared for the sick and properly equipped camping outfits set in place for the apparently well, in my judgment, reflects great credit upon those engaged in that work, when it is remembered that such a mass of troops was rushed in with scarcely a moment's warning.

"5. *The camp itself.*—For a summer sojourn of a couple or more months, this is in my opinion an ideal camp. In fall or winter I believe it to be the reverse. Climatic and weather conditions then exist favorable to the development of pneumonia, bronchitis, and allied diseases, and especially would this be the case with those who were in an enfeebled state in consequence of physical exhaustion or an impoverished state of the blood. The water I believe to be good, notwithstanding the insane crusade against it by the ignorant. For myself, I have taken it without boiling from all parts of the Point without the least inconvenience. Reference to some new features in military-hospital management may not be out of place. I wish to allude to the value of trained female nurses, which has been a revelation to me. The diet kitchens, too, where provisions for the sick, and especially for the very ill on such a large scale becomes necessary, are invaluable accessories."

Facilities afforded relatives and friends seeking information.—The executive officer of the general hospital, whenever it was possible to ascertain the information, telegraphed to the friends or relatives the condition of those they were interested in. These, in case of a fatal termination, were at once notified of the death and information was solicited as to the disposition of the body. Those visiting the hospital to see their relatives and friends and who desired to remain overnight were comfortably tented, and provided with cots, mattresses, and blankets and permitted to eat Government rations. They were aided in every way possible to locate their friends, and if located, every facility was offered within our reach to afford them the means of visiting those sought for.

Hysterical women and those seeking notoriety were not encouraged to remain here. Notwithstanding this, they continually hung on our flanks until quite recently, when, as the excitement began to wane, the place became uninteresting to this class of people, and they went to pastures new.

Records and clerical work.—When the first troops arrived there was only one book in which to keep records; that being a blank book brought to the camp by the medical officer serving with the Sixth Cavalry. This served as a record of the troops coming with that organization, but could not be used for records of the patients soon arriving in great numbers. Consequently, there were no books or papers by which a record could be kept of anything except of admissions and deaths; and not until August 21 did we receive stationery that would permit us to undertake to keep a proper record of the patients here.

A report of the sick and wounded could not be furnished on account of the rapid change of the patients; for instance, patients arriving one day would be furloughed or transferred to another hospital the next day.

For a time after the stationery arrived it was impossible to work the clerks at night owing to the fact that there was no light. We were able only to obtain now and then a candle, which was absolutely necessary to have in the wards for the patients; the records, like the rest of the hospital, becoming better as time went by. Finally, when we had plenty of light and stationery, the clerks worked every night, sometimes all night, and now the records are as near perfect as one could wish.

The diet kitchen.—The following is a statement by Mrs. M. H. Willard:

"Through the cooperation of Colonel Forwood it became possible to establish a diet kitchen for the sick and convalescent soldiers under the care of the general hospital at Camp Wikoff. Previous to August 27, 1898, all of the patients had been fed from the mess kitchen, a small wooden building presided over by an army cook, who had neither the time nor knowledge to prepare food necessary for the diet of malarial and typhoid patients. The army rations or hospital stores of rice, oatmeal, and milk formed the diet for every meal, until many of the patients were unable to digest their food. The physicians and nurses could not secure the simply prepared chicken, beef, and mutton broths, so necessary for the proper nourishment of the sick. As soon as the men were convalescent they were sent to the mess kitchen, where they could obtain only the army rations of pork, beans, bacon, and (at times) fresh beef. It is conceded by all physicians that the diet of the fever convalescent is the most important factor in the patient's recovery.

"It was the great need for carefully prepared food which prompted the Red Cross Society and the Massachusetts Volunteer Aid Association, represented by William H. Prescott, M. D., to establish between the general hospital and the

annex a diet kitchen, to be conducted on scientific principles, and to provide all liquid, light, and special diets. Tents were secured August 23, 1898, and every arrangement made as speedily as possible to feed the 1,500 patients in the hospital. Every assistance was given by the authorities, and valuable aid was rendered by the volunteer engineer corps in putting up the framework, in perfecting the sanitary arrangements, and in bringing running water into the tents. All expenses of a large supply of kitchen utensils, cereals, and foods were paid by the Massachusetts Volunteer Aid Association, who also secured the cooks. The Red Cross Society placed Miss E. F. Cox in charge, a dietician and graduate of a Boston school of dietetics, who thoroughly understood cookery for the sick. On August 27, 1898, four days after the first plank was laid, supper was served to the patients. Since that date about 4,000 patients have been fed. Beef tea, mutton and chicken broths, custards, rennet, steaks, chops, scraped-beef sandwiches, broiled chickens, birds, and other delicacies have been served.

"The officials in charge of the hospital speedily recognized the value of the work, and a few days following the opening of the kitchen it was turned over to the Government, accompanying orders from Maj. C. L. Heizmann that all supplies needed outside of the general-hospital stores could be purchased independent of the commissary department. The kitchen was then enabled to meet almost every demand upon it for any delicacy required by the patients. The surgeons in charge of the division hospital requested that the diet kitchens should be established before the opening of their wards. This was done at once; ranges and other necessary articles being brought from New London by the tug *Alert*, the property of the Massachusetts Volunteer Aid Association. The diet kitchen of the First Division hospital opened September 5, 1898, with Miss E. D. Ballinger in charge, and was ready to receive the first patients brought in. It continued until the hospital was disbanded, September 19, 1898, during which time 340 patients were fed for seven hundred and sixty-six days, making the total number of meals served 2,198. The diet kitchen of the Second Division hospital opened September 8, 1898, with Mrs. A. E. Aldred, a graduate of the New York Cooking School, in charge, and the same careful system was observed as at the general hospital. Four hundred and forty patients were received; total number of days, six hundred and sixty-nine, and 2,007 meals were served. Owing to the late completion of the regular mess at this division the patients also received solid diet. The Third or Cavalry Division hospital was ready to open September 7, 1898, and the diet kitchen was completed in time to care for every sick man brought in. This is still open and the statistics not yet made up. At the detention hospital there was opened on August 29, 1898, a diet kitchen in charge of Miss Mary Fennessey, who, with only an oil stove and a few kitchen utensils, did excellent work. Through the system adopted by the Red Cross and the Volunteer Aid Association, and later by the Government, we were able to render valuable aid in securing ranges, kitchen utensils, and a prompt delivery of supplies. The kitchen closed September 19, 1898, having distributed meals to about 1,000 patients. The kitchen at the general hospital will remain in active operation as long as there is a patient requiring its services."

Upon my arrival, September 10, I found the various hospitals in excellent condition. In fact, I have never seen field hospitals better arranged or in more perfect order. The wards were clean, the attendance was efficient both by doctors and nurses, the food was well cooked and served, the discipline was good, supplies of all kinds ample, and the patients as well cared for as they could have been in the best-managed city hospital.

As my specific duty was to expedite the transportation of the sick to city hospitals, my attention was first turned to the means at hand for accomplishing the work. I found a train of 22 ambulances under the command of Lieutenant Sile, assisted by Dr. Moore; this train was camped partly near the dock, and partly at the division hospitals of the Fifth Army Corps, so as to be readily available for service at any part of the field. At the dock was stationed Dr. F. G. Jones, to take charge of the sick and conduct their transfer to hospital ships, and at the hospital a medical officer was assigned to supervise the transfer from wards to ambulances.

Prior to leaving Washington, I telegraphed an order for the assembling of a board of three medical officers to examine carefully all patients about to be transferred, and to determine who were in proper condition to make the journey; no man should go who would be likely to be injured in the transfer, or who was well enough to return to his regiment. The function of the board was subsequently extended to applicants for furlough, and their action in both cases was final. The board at the general hospital was composed of Lieutenant-Colonel Senn, Major Nancrede, and Dr. Delafield, of New York, all men distinguished in their

profession. Similar boards were arranged in all the other hospitals at the camp. This action was a necessity, since the importunity of relatives and friends, and the desire of the patients to be sent home was so great as to embarrass the ward physicians, warp their judgment and thus lead to the transfer of men who subsequently fell by the way, or possibly would die from the exertion and excitement of removal.

The hospital ship *Shinnecock* and the yacht *Red Cross* were available for water transportation, and some railway cars, equipped at the private expense of Mr. McMillan and Mrs. Whitelaw Reid, furnished land transportation. On the day of transfer early word was sent to the several hospitals to prepare the patients for removal at a fixed hour, usually 1 o'clock p. m. Clothing was issued, food given, and transfer slips prepared, the number to go having been previously reported. Guards were placed at the leading stations to keep away sightseers. As fast as ambulances were loaded they were driven to the dock, where Dr. Jones, assisted by a large detail of attendants, took charge of the patients and placed them on the ship.

Telegraphic notice of departure was sent to the officer designated to receive them at the point of debarkation. The points of shipment were New York, Philadelphia, Boston, Providence, New London, and other cities along the sound. The hospital ship was fitted with every convenience, well supplied with doctors, nurses, medicines, food, etc. Shipments were made every other day, and during my tour of duty over 1,200 sick and convalescents were handled. The first and second division hospitals were soon emptied, and I ordered them closed; so, also, the annex and branch sections of the general hospital; this for the purpose of convenience of administration, and to afford better service for the remaining sick. The medical board referred to decided also on the condition of removal of the patients from one ward to another.

As there was much apprehension regarding suffering of the sick from storms and cold weather, I ordered the construction of wooden pavilion wards, each to hold 40 patients, placing them alternately between tent wards, one tent ward being removed to give place to a pavilion. Their plan of construction was superintended by Dr. Delaheld, of New York. They were furnished with stoves, water was piped into them, ventilation secured, and the comfort and convenience of the sick when in them were thus assured.

The vast amount of public property made surplus by the departure of the sick and the concentrating of administration, was collected, packed in containers for shipment, regular inventory taken, and the whole placed in store tents in the general hospital, where it could be properly guarded, until finally disposed of by order of the surgeon-general.

The surplus personnel was gradually utilized at other places, doctors and nurses being sent to Cuba, Porto Rico, and Southern hospitals, by order of the surgeon-general, and on their application for retention in service, while those who desired it were granted a discharge.

Thus quickly, but in an orderly manner and without disturbance, this host of sick soldiers left the great camp almost deserted. At the time of my departure there remained about 800 very ill patients; too ill to be moved. They were receiving every comfort and had ample provision made for their care until the end should come, or they were sufficiently recovered to be returned to their homes.

REPORT OF LIEUT. COL. HENRY LIPPINCOTT, DEPUTY SURGEON-GENERAL, UNITED STATES ARMY, ON THE CONDITION OF MEDICAL AFFAIRS IN THE PHILIPPINE EXPEDITIONARY COMMANDS.

[Dated Manila, Philippine Islands, August 31, 1898.]

In my communication of the 27th ultimo, I had the honor to inform you that the health of this command was fairly good. This may still be said to obtain, but the sick list is larger than it would be were our men better situated in a sanitary way. There is a great tendency to stomachic and intestinal disorders, dysentery being common, but malarial fever is also of frequent occurrence, and many of the diseases common to the United States are also observed. These will appear on the monthly reports and are merely referred to here. The total number of deaths from disease and accidents since first fleet left San Francisco is 29, distributed as follows: Typhoid fever, 14; septicæmia, 1; paralysis, 1; broncho-pneumonia, 1; pneumonia 2; dysentery, 2; meningitis, 2; cerebro-spinal meningitis, 1; heart rheumatism, 1; heat exhaustion, 1; endocarditis, 1; appendicitis, 1; morphine poison (suicide), 1.

Regarding reports, I have to state that the surgeons have had much to contend with in rendering them. Some of them, I regret to say, have been unavoidably long in reaching your office. I can assure the Surgeon-General, however, that we have not only had incessant storms to contend with, but transportation between the transports and Cavite and the transports and Camp Dewey has been most difficult and dangerous. The bay of Manila is practically an open sea and we have had to land supplies and patients through the surf, contending with high winds and almost constant rains. Life has frequently been endangered and property has been lost or ruined. With all this the medical department has performed its duties cheerfully and efficiently. The headquarters are now here where I opened my office on the 17th instant, and trust soon to be able to have the medical officers instructed in the preparation of the various reports, etc. At San Francisco there was no time for systematic instruction, although much was done in that direction. On my arrival there I began at once to complete the organization of the medical department for these forces, steps having already been instituted in that direction by Lieutenant-Colonel Middleton and Surgeon R. H. White, United States Army.

I found that a number of men had been enlisted for the Hospital Corps, but, perceiving that many more would be required, I recommended continued enlistments, and, in addition, the transfer of the volunteer regimental hospital corps to the regular establishment, which was ordered. Many excellent men were thus secured, and I was thereby enabled to furnish a sufficient number of privates for duty in the division hospital in Camp Merritt and for attendance upon the sick in the transports. Each full regiment of volunteers has 8 hospital stewards, so that the allowance of hospital stewards of the United States Army for the corps is limited to 10. The allowance of medical officers has been about sufficient thus far, but the employment of a few more contracts will probably be necessary.

While in San Francisco I made every effort to secure ample medical and hospital supplies, and was successful to a great degree. The medical purveyor, Colonel Middleton, did everything in his power for us, and issued many articles not usually supplied for field service. Many necessary articles for the sick on the transports were furnished. Brigade supplies were put on board certain ships, and everything was done that could reasonably be done to make the voyage successful. Of course a few things ran short, but, taking all together, I can say the troops were supplied with all essentials on the way here.

On the ocean I prepared a circular for the guidance of medical officers, and several typewritten copies bearing the approval of the commanding general were issued before the attack on Manila. This circular is chiefly a compilation from existing orders, regulations, etc., and will be printed as soon as possible and a copy forwarded to your office. A knowledge of its contents aided the surgeons during the attack, and here I desire to say that the Medical Department was all that the Surgeon-General could wish, and the conditions were most trying. The ambulance company was commanded by Captain Keefer, of the Army. He had a number of excellent medical officers with him and they, one and all, together with the enlisted men of the company, did fine work during the advance on Manila.

The hospitals (two brigade, under Surgeons Crosby and Penrose) were in excellent working order, but were not moved forward, the distance from Camp Dewey to Manila being only about 4½ miles. Major Crosby, brigade surgeon, was and is chief operator for the second brigade, and Major Fitzgerald, Thirteenth Minnesota, was and is chief operator for the first brigade. These officers were assisted by Major Kemble, of the First Colorado; Asst. Surg. Paul F. Straub, United States Army; Asst. Surg. N. M. Black, First North Dakota Volunteers; Asst. Surg. J. M. Cabell, United States Army (retired), and Acting Asst. Surg. G. W. Daywalt, United States Army.

The number of killed during the attack on Manila was 4; wounded, 4 officers and 41 enlisted men. These were all brought back to camp quickly, although the means of transportation were very imperfect, viz, the two-wheeled carrometa of the country carrying our litters, and by the Hospital Corps men with regulation litters. Ambulances could not have been used even if on hand, because of the nature of the ground and obstructions. I desire here to say that our department received great credit for its preparation, and for the manner in which it met the many difficulties of the day. It should be stated that every wounded man was dressed and comfortably in bed by 7 o'clock p. m. on the day of the attack. I have also to add that the wounded are all doing very well and that no amputation of any kind has been made, notwithstanding the fact that we have had severe wounds complicated with fracture of the limbs.

While the volunteer surgeons lack knowledge of reports, etc., the Surgeon-General may well be proud of their field and hospital work.

In the matter of supplies, I must say that the field supply table is not entirely satisfactory, considering the distance from our base. However, I have no reason to be thankful that it was not adhered to. Our supplies now arriving on the way will serve for some time, especially as we doubtless will soon have some money available should emergencies require purchase. Before the bank of August 13, fearing the possible necessity for more dressings than we had on hand, I purchased some material, for which vouchers will be handed the purveyor on arrival.

We are still using several buildings in Cavite for hospital purposes. These are all absolutely unsuitable in every way, making no pretensions to sanitary fitness, but are the best we could obtain. It will be necessary to continue their use for some time, because troops will remain in the town for a while longer. The British hospitals were removed from Camp Dewey to the Spanish military hospital in the city, August 17, and there combined to form a division hospital, August 20, for administration purposes. This establishment was erected by the Spaniards and used by them as a general hospital. It is quite large and in fair repair. It has room for at least 400 beds, and at this date 288 beds are occupied. Prior to placing the patients in the wards the surgeons took great pains to have the wards cleaned and disinfected. It is probable that some of the patients will be transferred from Cavite to this hospital.

The ice machine is being put up in Cavite under the direction of Surgeon Woodruff. It will be of the greatest value when working, which is likely to be soon. The drinking water is insufficient and limited to the rainfall.

The Spaniards have given little attention to sanitary matters, so that coming from our country to this, one is reminded of the advantages our people have in the United States.

I am getting the supplies from the ships and from other sources, but it is proper to add that unavoidable events, etc., as referred to above, have thus far necessitating storing and segregation of property absolutely impossible. Now, however, affairs are taking shape and we will soon be in good working order. I understand we are to have a hospital ship (the *Scandia*). This will be most acceptable, for at that time will surely come when such a vessel will be necessary.

I wish to mention the fact that we have used the Hunt ovens in the field hospitals and found them useful. I had a large number supplied by the Quartermaster's Department before leaving San Francisco. I desire also to refer to our supply of hospital tents received in the same city. The Quartermaster's Department has been well for us, and I have every reason to be grateful to them. The inexperience of the Hospital Corps has been somewhat of an inconvenience; still, on the whole, the corps has done good work, and I have already expressed myself in regard to the ambulance company. The surgeons have taken great pains to procure suitable nourishment, ice, and other necessities for the wounded and sick as well as these have greatly contributed to the present good condition of the former. They have been equally beneficial to the latter.

About 15,000 points of vaccine virus were issued to the surgeons in Camp Merritt prior to the 29th of June. These points were nearly used before the troops embarked.

On our arrival at Honolulu I, under orders from General Merritt, examined into the propriety of establishing a hospital there for our sick. This was deemed necessary for the reason that almost all of the transports were obliged to leave one or more sick in that city. A building was selected, and recommendations for medical officers, attendants, supplies, etc., made.

The troops are all quartered in buildings now; some are well housed, others are not. It is difficult to restrain men from eating and drinking unwholesome articles, and these with the great heat have increased the sick list recently. Efforts are being made to correct errors, and I expect good results. The number of patients in hospital in Cavite to-day is 71; this I neglected to enter under the proper heading. We now have a launch and a well-equipped ambulance company, and are able to remove the sick from place to place about the harbor. We have now to refer to the beds and bedding for the sick of this command. We have been able to gather a good many formerly used by the Spaniards. These though imperfect, in many instances have been a great help.

I have just called attention to the danger of unwholesome articles of food and drink, and expect to see the sick list decline by the enforcement of sanitary recommendations.

It is proper that I should refer to the Spanish sick. They have very many, as from what I can learn I do not think they fare much better here now than they did on arrival; but they do not consider sanitary requirements as our people do, and hence have a much larger list. Their sick are well supplied with essentials.

and I understand they are doing fairly well, although the number is very large, about 1,400 in hospitals in all.

I now inclose list of wounded, an analysis of which shows that there were—

Killed:	
Officers	None
Enlisted men	11
Wounded:	
Officers	12
Enlisted men	104
Total	127
Died from wounds received in action:	
Officers (Captain Richter)	1
Enlisted men	7

Respectfully submitted.

GEO. M. STERNBERG,
Surgeon-General.

Hon. RUSSELL A. ALGER,
Secretary of War.

ANNUAL REPORT OF THE PAYMASTER-GENERAL.

WAR DEPARTMENT,
PAYMASTER-GENERAL'S OFFICE,
Washington, October 25, 1898.

SIR: I have the honor to submit the following as the report of this office for the fiscal year ending June 30, 1898:

On July 1, 1897, officers of the Pay Department were charged with public funds aggregating	\$598,883.29
During fiscal year 1898 these officers received:	
From the United States Treasury	22,117,948.49
From soldiers' deposits	613,513.51
From army paymasters' collections	169,624.18
Total balances and receipts	23,499,969.47
Accounted for as follows:	
Expended on account of pay of the Army	14,632,569.64
Expended on account of pay of the Army (United States Volunteers) ..	1,519,150.64
Expended on account of pay of the Army (national defense)	5,000.00
Expended on account of mileage to officers	103,201.80
Expended on account of mileage to officers (national defense)	37,021.94
Expended on account of pay of Military Academy	300,321.99
Expended on account of volunteers (Treasury certificates)	437,341.28
Surplus funds deposited to credit of United States Treasurer	1,206,366.42
Army paymasters' collections deposited to credit of United States Treasurer	169,624.18
Balances charged officers June 30, 1898	5,090,371.58
Total	23,499,969.47

A comparison of the expenditures of the last fiscal year with those of the preceding year shows a net increase of \$2,326,804.11. This increase is accounted for by the fact that by act of March 8, 1898, two additional regiments were added to the strength of the Army. Again, under act of April 22, 1898, the Regular Army was, by order of the President, recruited to its maximum strength, making about 61,000 men.

Under act of April 22, 1898, the President, on April 23, 1898, called for the enlistment of 125,000 volunteers, following the same on May 25,

1898, with an additional call for 75,000 volunteers, 3 regiments of specials, 10 regiments of immunes, 3 regiments of engineers, and a signal corps, thus providing for an army of over 280,000 regulars and volunteers.

To meet the payment of this extraordinary force estimates were prepared and submitted to Congress and liberal appropriations were made for payment.

Collections in favor of other bureaus of the War Department.

Collections for credit of appropriation for "Pay, etc., of the Army" ... \$109, 115. 13
Collected and turned into the Treasury to credit of:

Quartermaster's Department	56, 076. 58
Subsistence Department	185. 01
Ordnance Department	2, 276. 66
Medical Department	3. 53
Mileage to officers	1, 243. 64
Miscellaneous receipts	723. 63

Total collections..... 169, 624. 18

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REPORT OF THE CHIEF SIGNAL OFFICER.

WAR DEPARTMENT, SIGNAL OFFICE,
Washington, October 10, 1898.

SIR: I have the honor to make the following report of the operations of the Signal Corps of the Army for the fiscal year ending June 30, 1898:

In view of the importance of events since June 30, there have been incorporated in this report the story of the war as far as the Signal Corps is concerned to September 30, 1898.

To a greater extent than any other corps of the Army, the Signal Corps has had its field of operation and sphere of usefulness expanded by the Spanish-American war. While the Army has been increased ten-fold this corps has been enlarged more than twenty-fold, from 60 officers and men to 1,300. Despite this astounding increase, rendered absolutely necessary by the insistent demands of the age for instant communication by telegraph or telephone, there has been no hour of leisure for any company of the Signal Corps. On the other hand, so active and acceptable have been the operations of the volunteer officers and men that no army outside the country from the Philippines to Porto Rico or Cuba has waited a day for its telegraph or telephone, and the commands and supply depots of no great military camps within the United States have been without their independent system of electrical intercommunication.

In the attached reports (Appendixes 1 to 13) of subordinate officers will be found detailed accounts of the organization and operations of the Volunteer Signal Corps, with which the fortunes of the regular corps have been inextricably entwined. This report narrates briefly the more important features of the active participation of the Signal Corps in the war.

PRELIMINARY CONDITIONS.

The approach of war found the 8 available officers and 50 men of the Signal Corps widely scattered—from Oregon to Texas to the south and New York to the east. There were not more than 2 men at any station, and only \$800 was available for war expenses. Theoretically, under

the restricted policy as to the Signal Corps, there should have been a reserved force of 454 officers and 1,816 enlisted men in the line of the Army from which to draw signalists and telegraphers for campaign work. This system broke down absolutely, as always in the past, a fact that the Chief Signal Officer has pointed out for years in his reports on Indian campaigns and other army operations. Only 7 officers and about 50 partly trained men were obtainable from the line of the Regular Army, and these were largely drawn from commands having no hope of active duty. Where a chance to face the enemy obtains, the line soldier will not leave his comrades for staff duty, however important, except by imperative orders, and the American people glory in this esprit de corps.

When war was declared the Chief Signal Officer immediately asked orders that assembled with the moving troops every signal man but five, while every officer on active duty sought and obtained orders for field service, the Chief Signal Officer working alone for nearly two months without a skilled assistant in his office, so that field operations might not later suffer for want of competent signal officers with the newly organized army corps. To add to the difficulties of the situation the act for the organization of the Volunteer Army, through oversight, failed to provide for the electrical work of the volunteers, and the Chief Signal Officer was obliged to resort to Congress for special legislation.

MILITARY TELEGRAPH CABLES.

With the increasing prospects of war, public attention was called to the harbor defenses. For six years the Chief Signal Officer had unavailingly urged on Congress the absolute necessity of perfecting its costly system of coast defenses by establishing electrical intercommunication between adjacent fortifications, especially in the harbors of New York, Boston, and San Francisco, so that the entire system of defense could be controlled by one mind. Despite the war emergency, Congress, in March, 1898, refused an appropriation for this purpose. Recourse was then had to the Secretary of War for an allotment from the national defense fund for this purpose, and on April 5 \$23,700 was allotted for New York, the other harbors being provided for later. As a result cables have been laid between adjacent fortifications in the harbors of Boston and New York, while the cable for San Francisco is on the ground awaiting final decision as to the best method of providing for the needs of this important harbor. In addition, cables connecting either adjacent forts or single forts with the commercial telegraph system have been made at Newport, R. I., in Long Island Sound, near Philadelphia, near Southport, N. C., in Charleston, S. C., harbor, and near New Orleans, La. The exterior defenses of the city of Washington, Forts Washington, Myer, and Sheridan's Point have been connected telephonically with each other and with the War Department. Block Island has also been connected by a telephonic cable with the mainland at Narragansett Pier.

ELECTRICAL INSTALLATIONS AT ARMY POSTS.

Coincident with the demands for proper harbor defenses arose the question of electrical installation for the fire-control system, an absolutely necessary adjunct of disappearing guns. Under this system the range officer, located a long distance from the batteries, determines every minute or less the position of the enemy's ships and communicates this information to the officer who controls the fire. The control

officer plots the positions and at a suitable instant causes through the firing officers the mortars to be discharged or one or all the guns to rise, deliver their fire, and then disappear in their pits. Although instant and continuous telephonic or electrical communication is indispensable between the range, the control, and the firing officers, yet there existed no appropriation for such an electrical installation, nor did any installation exist save at two or three experimental stations which had been provided with tentative installation. Charged by orders with the providing of such installation, the Chief Signal Officer has procured the necessary telephonic and electrical instruments, so that every gun can be put in direct communication with the control officer. Other necessary instruments have been contracted for and manufactured, conforming in all respects to the approved types furnished by the Board on Regulation of Seacoast Artillery Fire. Seventy complete sets thus manufactured are awaiting the instructions of the Artillery Fire Board as to the batteries to which they are to be assigned, except about ten sets which have been issued to the more important forts for experiment and test. The electrical installations thus made demand skilled electricians, such as the Signal Corps is to furnish, for their proper care and maintenance. Sergeants will be assigned to the artillery posts for such duty as soon as the exigencies of war service will permit.

The commanding officer at Fort Monroe having reported that he was unable to properly care for the search lights and other electrical instruments, with the consent of proper authorities, the Signal Corps has repaired and put them in good order. As occurred at Camp Montauk, future emergencies may arise where the establishment of an electric-light plant may be demanded in the public interest, in which case the Signal Corps can at any time duplicate its work of installing and operating such a plant without the employment of high-priced civilians.

PROPOSED HAVANA CAMPAIGN.

In connection with the contemplated operations against Havana the Chief Signal Officer caused to be assembled at Tampa, Fla., every signal sergeant that could be possibly spared, and also added thereto every enlisted man of the line who was familiar with the rudiments of signaling and who would accept service. The outlook for the Signal Corps would have been most discouraging if there had not been in existence three small detachments of detailed men of the line, who had been brought together a few weeks earlier for signal instruction through the efforts of Captain Glassford, Lieutenants Greene and Reber, and by authority of Major-General Miles, Brigadier-Generals Otis, Shafter, and Graham. This made available about 45 trained men (signal sergeants) and about 50 detailed partly instructed men, not more than one-third of the number needed for the operations of the Regular Army alone. Every military post in the country was stripped wholly or in part of its signal stores and equipment, and new supplies were ordered to be manufactured without formality of bids. The officers made herculean efforts to perfect by drill and practice these men who had never been able to act in concert since detailed for duty with this Corps. The advantages of recruiting the Signal Corps by selections or competitive examinations from the noncommissioned officers of the Regular Army was strongly emphasized by the readiness with which these men communicated to their comrades skill and efficiency in signal, telegraph, and balloon practice, under conditions

that would have seemed impossible to any but experienced and hardened soldiers. Every moment was utilized in preparing for the expected field service.

MANILA CAMPAIGN.

The preparations of the Signal Corps for operations against Havana were interrupted by the capture of Cavite, the occupation of the harbor of Manila, and the demands for a force to operate in the Philippines. Major-General Merritt, realizing the necessity of electrical intercommunication for an army operating far from home in an untried country, asked that he should be supplied with a selected Signal Corps embracing as many Spanish-speaking officers and men as possible. The Signal Corps is fortunate in the linguistic acquirements of its officers, as half the Corps has a knowledge of Spanish, and the Chief Signal Officer was able to send to Manila four officers familiar with Spanish. Lieut. Col. Richard E. Thompson, captain in the regular Corps, whose report forms Appendix No. 1, was made the chief signal officer of the command. Originally the Chief Signal Officer could only spare 6 signal men for this large expedition, but after the organization of the Volunteer Signal Corps was authorized there were added 13 officers and 110 men. Their proper equipment was very difficult from the fact that the entire Pacific coast had been practically stripped of signal supplies for the use of the Army Corps in Florida, but the Philippine expedition was by dint of especial exertion sent forth so fully equipped that no signal supplies of any kind have ever been called for from Manila and no deficiencies reported.

Official reports indicate that Lieutenant-Colonel Thompson and his officers and men have justified the confidence reposed in them, and in addition to the efficient discharge of their technical duties have contributed their share to the luster gained by American arms in the far east. A war cable was laid between Cavite and the city of Manila. Telephonic and telegraphic communications were established and maintained not only between headquarters of the commanding general and his detached commands and depots, but as our army moved forward the Signal Corps carried into the advanced trenches its telegraph lines and repaired them under fire, whereby communication was maintained throughout the campaign. When the final assault came one company of the Signal Corps ran the field-telegraph line up to the open beach and established an advanced station under fire of the enemy's second line. Another party, led by Captain McKenna, marched up the beach with the firing line, their signal flags displayed, so that the fire of the navy should fall in advance of the army, and, displaying these flags as the first emblems of the United States in the enemy's fort, established an advanced telegraph station under the fire of the enemy's second line, and maintained communication with both wings of the army till the enemy's positions were carried. Lieut. Col. R. E. Thompson and five other officers of the Signal Corps were brevetted for gallant and distinguished service, and eleven enlisted men were recommended for rewards for gallantry and distinguished conduct.

After the occupancy of Manila Lieutenant-Colonel Thompson repaired the Manila-Hongkong cable and reopened it for use four days in advance of the expected time, which was supposed to depend on the arrival of the English cable ship then en route from Singapore.

VOLUNTEER SIGNAL CORPS.

Affairs had, however, reached such a point in early May that the necessity of organizing a Volunteer Signal Corps was obvious to Con-

gress, for the regular corps could not even furnish one officer to each authorized army corps.

The Volunteer Signal Corps was organized under the provisions of the acts of Congress approved May 18, 1898, and July 7, 1898. These acts looked to a corps whose maximum number should be 138 officers and 1,115 men. There were never in service, however, at any one time more than 115 officers and about 1,000 men.

Recruiting commenced June 2, and in thirty days the corps was not only practically organized and partly equipped, but one of the companies was already in the field with the army before Santiago de Cuba. The recruiting and equipment of the Volunteer Signal Corps, on lines laid down by the Chief Signal Officer, was intrusted to Col. H. H. C. Dunwoody, Signal Corps, whose report, Appendix 2, gives interesting details. Colonel Dunwoody applied himself to his difficult task with such a degree of intelligence, skill, and energy as insured from the very out set the successful organization of the Volunteer Signal Corps. The difficulties of clothing, equipping, and outfitting the volunteer corps were almost insurmountable considering the limited time, but tact and persistency worked wonders. Colonel Dunwoody wisely insisted on the corps being equipped for field service before any company should leave its original camp. A most wise decision, that contributed greatly to its efficiency.

The lines on which the corps was organized are of interest and may be of value in future wars, inasmuch as the principles involved are believed to have been most essential factors in the subsequent efficiency of the corps. The original field officers were appointed from the captains and lieutenants of the regular Signal Corps, as far as their limited number permitted, that is, from officers who had attained their commissions by competitive examinations, and their promotions after rigid examination, thus insuring professional fitness and ability, mentally, morally, and physically.

Fourteen of the highly educated and trained enlisted men, first-class sergeants, were promoted to be second lieutenants. Six captains were promoted from lieutenantcies of the regular line and two others from graduates of West Point in civil life. Other officers, as far as possible, were such as had served in the Signal Corps of the National Guard.

It should be added that both the President and Secretary of War gave their moral support to the Chief Signal Officer in the organization of this corps in an efficient manner. The greatest safeguard of the corps, however, was the action of Congress in enacting the provision recommended by the Chief Signal Officer, that two-thirds of the officers and enlisted men should be skilled electricians or telegraphers.

Under these conditions the original selections for field officers were, without exception, highly trained officers in the prime of life, thoroughly skilled in the specialties of the corps, not only admirably fitted for administrative duties, but also capable of arduous campaigning. It may be added that not one of these officers was either invalidated or obliged to quit his duties during the war, though they served at Santiago, in Porto Rico, and at Manila.

The subordinate officers were almost entirely trained in electrical pursuits or in duties of an allied character in civil life, where special intelligence and ability are necessary to insure success. These methods reduced to a minimum appointments based solely on influence.

The result of thus selecting officers and men of business experience and executive ability has been so strikingly successful as to emphasize

the advisability of similar legislative restrictions should another volunteer army be raised, or the Signal Corps of the Army be increased.

It is to be stated that almost without exception the officers of the Signal Corps proved efficient, and that the body of enlisted men challenged any other corps or branch of the Army to produce its equal for ability, intelligence, and amenability to discipline. Their service was uniformly marked by cheerfulness, zeal, and good conduct, and was characterized by that resourcefulness which is an especial characteristic of the typical American soldier.

The successful interest of the officers in caring for their men and the self-reliance of the men themselves are strikingly illustrated by the fact that with a force of 1,300 men, both the volunteer and regular corps, up to the date of the orders for muster out of the first company, lost only five men, a death rate unequaled, it is believed, by any corps of the Army which operated in every great camp in the country, and in every campaign abroad from the Philippines to Cuba and Porto Rico.

SANTIAGO DE CUBA CAMPAIGN.

Especial interest for the Signal Corps attaches to this siege, since, as is stated elsewhere, the Chief Signal Officer of the Army, by his representations, was responsible for the inception of this campaign, which proved to be the turning point of the war. The work of the Signal Corps therewith naturally divides itself under three independent lines:

(1) The rearrangement and installation of an electrical communication whereby the War Department was brought as near to the army, and able to exercise as potent an influence therewith, as though the operations were conducted at distances of 100 miles instead of 1,500.

(2) The signal work proper, involving communication, electrically and otherwise, between the commanding general of the Fifth Army Corps, his division and brigade commanders, the transports, the supply depots, and the cooperating fleet of the Navy.

(3) War ballooning.

REARRANGEMENT OF CABLES AT SANTIAGO.

The rearrangement and installation of electrical communication in Cuban waters were greatly facilitated from the fact that Major-General Miles, commanding the Army, had earlier requested the Chief Signal Officer to make similar provisions for the proposed campaign against Havana. For the Havana campaign an allotment of \$80,000 had been obtained, but the Chief Signal Officer at the very outset found himself hampered by the fact that there was no submarine cable in the American market. All that was available at the beginning of the war had been previously purchased by the Navy Department, and for theoretical defensive purposes laid between Key West and Tortugas.

The details of this work of rearrangement were intrusted to Col. (then Capt.) James Allen of the Volunteer Signal Corps, for which he was courteously spared by Major-General Miles, commanding the Army, to whose staff he was attached. Colonel Allen's report, Appendix 3, sets forth the details.

The hearty cooperation of Gen. Thomas T. Eckert, Mr. Thomas F. Clark, of the Western Union Telegraph Company, and of Mr. James Scrymser, of the Mexican Telegraph Company, was of the greatest assistance; indeed, without their aid success was doubtful. The preparatory work was conducted with such method and discretion that a

ship was chartered, cable gear installed, and cable manufactured in New York without attracting general attention, and Colonel Allen sailed from Key West, Fla., for Santiago de Cuba on May 29, after several weeks of preparation, without the matter being heralded in the public press. Sixty miles of cable were deemed essential to success, and at first there was no prospect of obtaining any except by the slow process of manufacture at the rate of a mile per day. Two small lots were picked up here and there, but when the time for sailing came there were only 45 miles on board. The Chief Signal Officer decided to act, and ordered Colonel Allen to sail under the unjustified belief that the remaining 15 miles could be forwarded in time for use in the campaign. The steamer chartered for the use of the Signal Corps was procured through a third party, and was fitted up with cable gear of the Mexican Telegraph Company, the only available set of cable gear in the United States, as the superior set belonging to the Western Union Telegraph Company had been placed on the U. S. S. *Mangrove*, where it remained unused throughout the war. The 15 miles of cable deemed absolutely essential had not reached Colonel Allen when orders were given him to immediately leave Key West.

When the orders were given for departure the captain and crew refused to sail, but finally preferred the dangers of the Cuban coast to facing in the United States court a suit for breach of contract.

Appreciating the technical difficulties which attended the work, Colonel Allen engaged for the expedition 16 men skilled in cable repairs, but at the last moment no less than 13 absolutely refused offers of increased salary and other inducements and declined to sail. In this emergency Colonel Allen was authorized to take the only available sergeants (three in number) of the regular Signal Corps, while the Adjutant-General of the Army came to the rescue by authorizing 10 volunteers from the First Regiment of Artillery at Key West. With Capt. M. L. Hellings, of the United States Volunteer Signal Corps, a cable expert, as an assistant, and the motley force of men innocent of any experience of sea life or knowledge of cable work, Colonel Allen hastily put to sea. The expedition arrived off Santiago de Cuba June 1, 1898, and Colonel Allen immediately began his work, the first phase of which was the destruction of the submarine telegraphic communication of the army.

Long before the expedition sailed the Chief Signal Officer had carefully considered the question of cable cutting, and had announced his official opinion that the destruction of a cable, even though the property of a neutral, was fully justified, provided that operations were confined within the territorial jurisdiction of the enemy. The blockading of a port makes the operation by neutrals of a steamship line an action punishable by the destruction or confiscation of the ships thus operated. The introduction of articles contraband of war similarly results in the seizure or destruction of the articles thus introduced, and it can not be doubted that letters or messages are thus contraband of war. The operation of a submarine cable and the transmission of telegrams are far more injurious than the delivery of letters, in view of the secrecy and rapidity with which cable messages are thus introduced. The cases of the West Indies and Panama Telegraph Company and of the Cuba Submarine Company were even more pronouncedly contraband and liable to destruction than those of the submarine cable companies had certain exclusive privileges or received subsidies from the United States Government.

In addition, the International Convention for the protection of cables made

adopting regulations for the same during peace. With

these views, Colonel Allen was ordered by the Chief Signal Officer to destroy these cables and to confine his operations within the jurisdiction of Spain in Cuban waters.

The physical obstacles to success were extraordinary, it being a coral coast washed by a sea that deepens with a rapidity almost unknown elsewhere, the water attaining a depth of 7,000 feet within a marine league of the shore. Besides, the irregularity of the coral bottom is so extraordinary as to make dredging with ordinary cable gear extremely difficult and ineffective. Energy, application, and untiring effort worked out success. One cable was raised about 5,000 feet, when it broke. A second cable was raised 6,240 feet and a section successfully removed from it. It eventually transpired that these breaks were of one and the same cable, it having been severed at two points. Most persistent efforts to find the third cable failed, and with good cause, as it was later learned that it did not enter the main channel, as had been supposed, but miles to the eastward.

During this prolonged grappling the dangers of the situation gradually dawned on the working force of the *Adria*, who had not realized that they had been working within the range of the Spanish guns. Finally the bombardment of our Navy and the fire of the enemy's batteries left no doubt, for one Spanish shell passed directly over the *Adria*. While the American contingent were willing to remain and pursue their dredging, the alien force which navigated the ship objected to further operations at that point.

During the week that Colonel Allen pursued his work within range of the Spanish batteries he was under obligations to ships of the Navy for protection against a Spanish torpedo boat that threatened his destruction and for aid in handling the cables. Captains Clark, U. S. S. *Oregon*; Philip, U. S. S. *Texas*, and Lyon, U. S. S. *Dolphin*, were especially active and obliging.

Colonel Allen, being unable to navigate the ship with his American volunteers, and finding it impossible to constrain or persuade the captain and engineer to further operations off Santiago, proceeded to Guantanamo, where cable communication between Santiago de Cuba and Haiti was then interrupted.

The sailing of the Fifth Army Corps for the reduction of Santiago on June 14 changed the condition of affairs and caused the Chief Signal Officer to bend the energies of the Signal Corps to the establishment of speedy communication between the War Department in Washington and the environs of Santiago de Cuba. This involved not only the cooperation of several commercial telegraphic systems, but also the installation and operation of military cable and land lines by the Signal Corps to the point, as yet not definitely known, where our army would land on the southern coast of Cuba. The wide range of probabilities connected with the landing place of the Fifth Army Corps correspondingly increased the difficulties of the Signal Corps. Special arrangements were made with the Postal Telegraph Company, the United States and Haiti Cable Company, and the French Telegraphic Cables Company whereby speedy and effective service within the limit of neutrality were guaranteed as soon as the French cable south of Cuba could be repaired.

Cipher orders were telegraphed to Colonel Allen via Mole St. Nicholas, Haiti, to immediately bend his energies to the restoration of the telegraphic cables between Cuba and Haiti, and the establishment of telegraphic communication with the Fifth Army Corps, wherever it

should land. On June 13, renewing his work, he commenced the repair of the French cable near Caimanera. The conditions were adverse, but obstacle after obstacle yielded, and on the night of June 20 he opened station on shipboard and telegraphically reported to the Chief Signal Officer that the Fifth Army Corps had arrived off Santiago that morning and that General Shafter was in consultation with Admiral Sampson. On the following day Colonel Allen landed the cable and restored communication by opening an office at the marine camp at Caimanera, near Guantanamo. The message that communication was permanently restored between the south coast of Cuba and New York was received at the Executive Mansion in Washington five minutes after it was filed at Caimanera. The landing place of the army was then undetermined, but when General Shafter commenced the disembarkation of his corps the next day he was within two hours by boat and wire of Washington, and after June 29 was within twenty minutes of the War Department, with a direct telegraph service that continued uninterruptedly to the date of his occupation of Santiago.

The agreement with the French Telegraphic Cables Company strictly guaranteed its neutrality. The company agreed to accept the same military censorship from the Americans at Playa del Este as it accepted from the Spanish authorities at Santiago. It was agreed by the Chief Signal Officer that the United States should not interfere with the management of the cable, which, beyond strict military censorship, should remain in complete control of the French company and its agents. In short, this company had the same rights and obligations as devolved on the Western Union Telegraph Company in the operations of its cables between Key West and Havana. As the former cables were cut at Key West to insure rigorous censorship on that line, so the French cable was cut at Playa del Este to insure similar rigid censorship over messages to and from Santiago de Cuba.

Although cable communication was restored from Haiti to Caimanera June 21, the French cable to the west toward Santiago was yet broken. As the company had no repair ship, Colonel Allen acceded to their request that he should assist in repairing this section. While working on this line the French company opened at Siboney a commercial cable office that worked with Playa del Este partly over the Signal Corps wire cable and partly over the French line. As soon as he could extend his repairs toward Santiago Colonel Allen restored the French cable to the French company and laid an independent Signal Corps cable between Siboney and Playa del Este, thus insuring uninterrupted communication by having two lines between these points.

In connection with these various cable operations, Capt. Martin L. Hellings and three other officers of the Volunteer Signal Corps so distinguished themselves as to warrant Colonel Allen in recommending them for suitable acknowledgment. In addition, the Chief Signal Officer recommended Colonel Allen for brevet to be brigadier-general of volunteers for his conspicuous gallantry and persistent efforts within range of the enemy's batteries in an unarmed ship, which resulted in the destruction of one of the enemy's cables.

It is to be added that the establishment and operation of the telephone and telegraph line in connection with General Shafter's army depended entirely on the instruments and insulated wire furnished for this purpose by Colonel Allen to Lieut. C. J. Sweeney, chief signal officer, Fifth Army Corps, who was not with him the Signal Corps telegraph train that had been sent on this expedition.

Santiago having capitulated

Colonel Allen returned to his duties on

the staff of Major-General Miles, and on July 21 sailed with that general to assume charge of the signal operations of the army about to invade Porto Rico.

TELEGRAPH AND SIGNAL WORK AT SANTIAGO DE CUBA.

These operations were conducted under the orders of Lieut. Col. Frank Greene, chief signal officer of the Fifth Army Corps, whose report, Appendix 4, sets forth the details. Considering the limits of time and material, Lieutenant-Colonel Greene's work was remarkably successful. His energy and zeal merit especial commendation.

The work was directly done by Maj. G. W. S. Stevens, United States Volunteer Signal Corps, and 35 enlisted men of the Signal Corps, who were charged with the duty of establishing and maintaining communication between the commanding general, his division and brigade commanders, the supply depots, and such other points as he might designate. Each of the 30 transports had been provided at Tampa with a competent signal man, whereby communication was maintained by flag, and all orders were transmitted with precision and celerity throughout the fleet and its convoy during the voyage to Santiago and the disembarkation in Cuba. After disembarkment, detachments, as well equipped as their permitted supplies made possible, were attached to headquarters of the first division, second division, cavalry division, independent brigade, light artillery battalion, and the cavalry squadron, so as to provide communication between separate parts of the force. The commanding general allowed only means of visual signaling to be taken with the expedition, but the nature of the country, however, soon demonstrated that visual signaling could rarely be depended upon, and that reliable and general communication could only be maintained through the instrumentality of the telegraph or telephone; hence, the men were speedily withdrawn for more successful operations on other lines. The Fifth Army Corps, unfortunately, was not supplied with a field telegraphic train, the major-general of the corps having declined, even after recommendation was made to him through his signal officer, Major Greene, by the Chief Signal Officer of the Army, setting forth the necessity of such apparatus.

The signal detachments organized for this expedition had been depleted by the promotion of 14 sergeants to be second lieutenants in the Volunteer Signal Corps. This left with the purely signal detachments only 11 men who were skilled in signaling. There were, however, in the balloon detachment, 5 skilled signalmen, who were not allowed until June 28. Every effort was made by officers to properly train the men transferred from the line, but, of course, there were no opportunities for concerted action and instruction after leaving Tampa. In consequence the force assembled at Santiago was a makeshift organization that was licked into shape as rapidly as possible. If there were no deficiencies in the operations of this command during the early days of the siege it is astonishing, and the good results flowed, not from the wise provision in time of peace of a skilled force, but from the intelligence of the American soldier, supplemented by the skill of the officers in command.

The lack of thoroughly trained men was not the only serious factor that threatened the efficiency of the signal work. Seeing that visual signaling, which the commanding general of the Fifth Army Corps fully relied upon contrary to professional advice, was practically impossible for land operations and only proved useful between the

coast stations and the fleet, it is impossible to surmise what would have been the result had it not been for the supply of insulated wire, telegraphic and telephonic instruments, etc., which Colonel Allen furnished to Lieutenant-Colonel Greene.

The insulated wire had been especially made for this campaign. It was seven stranded (six steel wires around one of copper), and unusual care was used in its insulation, which was nearly pure rubber. Its tensile strength, lightness, flexibility, and conductivity and insulation were such that it met all requirements under conditions of extraordinary severity. Of it Lieutenant-Colonel Greene says:

Happily provided by the forethought of General Greely, the value of this wire can not be overestimated; having no poles, and the chaparral being too light to sustain the weight of the wire, the perfect insulation of the wire furnished enabled it to be laid up on the brush as far back from the trail or road as possible, or on the ground itself where no other course was open and a clearing back from the trail could be found, and so long as it was not cut or broken communication by its means was perfect.

It should be added that the Chief Signal Officer of the Army, foreseeing the absolute necessity of telegraph facilities for the successful handling of the Fifth Army Corps, determined on his own responsibility to provide against contingent failure and so sent by the Signal Corps steamer, the *Adria*, all available and spare stores that the capacity of the vessel would allow after taking on board its cargo of military cable. Although such orders were really unnecessary to such an officer, Colonel Allen was directed to furnish Lieutenant-Colonel Greene and any other officer requiring them such supplies as could possibly be spared, so that needful electric communication might be established and maintained. Without the material furnished it would have been practically impossible for communication to have been maintained and orders given throughout the 13 miles of army front, along the whole of which this insulated wire was finally stretched, from El Caney to Aguadores, for at times the single, narrow roadbed became a knee-deep water course.

Under Lieutenant Colonel Greene's well-directed efforts the construction of telegraph lines was most speedily carried out by Capt. (now Maj.) G. W. S. Stevens, United States Volunteer Signal Corps, whose interesting report, Appendix 4, shows the details of his work, which was pursued with a zeal, application, and intelligence that merits special notice, particularly in the utilization of broken instruments and the adaptation of local supplies to the end in view. Not allowed to land until June 27, Major Stevens, with a detachment of 8 men, reconnoitered roads and constructed that day a telephone line to Siboney and over the ridge to the northwest of that place. Major Stevens says:

Owing to the absence of the telegraph section, left at Tampa, the party had but their hands and one pair of pliers—no climbers, tackle, brackets, or tools.

In extending the line along the prolongation of the army's march, there was no telegraph wire available from Spanish forces and the party depended entirely on the insulated 7-stranded wire supplied by Colonel Allen, which was transported partly by pack mules, but which in the construction of the line was necessarily carried by the Signal Corps men. These conditions made rapid progress impossible, but by dint of extraordinary exertions 2½ miles of line were completed on the 28th through dense chaparral to the vicinity of La Guasima. On the day following the line was carried through that place to Sevilla and the headquarters of the cavalry division, and thence to the headquarters of the Fifth Army Corps, within a mile of El Poso or the sugar mill.

Of the physical conditions Major Stevens says:

Each day we had not only the natural obstacles to overcome, but suffered the daily deluge of rain, and, as we worked from early morning till dark, we were wet continually, and often stayed wet at night. The absence of blankets and protection proved trying, but none of us worried over the physical discomforts, our interest being so keen and all of us being too busy to think much of such things. The party had acquired an old kettle, and henceforth we lived and camped wherever we happened to stop.

From early morning of June 30 Major Stevens was able to inform the headquarters of the Fifth Army Corps in the field that through the cables it was connected by wire with America. There were no breaks in this complex system of telegraphic communication save those caused by our own soldiers and other persons occasionally cutting out sections of the insulated wire, partly through ignorance and possibly in some cases intentionally. As the Signal Corps was not allowed to take mounts, the patrol was necessarily slow and fatiguing. In accordance with orders from the commanding general of the corps the line was prolonged July 1, with the proposed forward movement of corps headquarters that day to the sugar mill, and stretched, says Major Stevens,

to El Poso building; but the Spanish shell fire was so accurately covering this space that the building could not be used, and the sugar mill, near by and about 200 yards to the right of and below Grimes's battery, became the field headquarters. The line was tied up to a tree behind the battery and then tapped at the bank of the creek at the sugar mill for a station, from which communication was had with corps headquarters in the rear and with Siboney.

On the morning of the 2d of July, by directions received from Lieutenant Miley, aid to the general commanding, the line was carried to the San Juan River, the station at "C" being still maintained, and on the afternoon of the 3d, under the direction of the chief signal officer, Major Greene, the line was carried forward and a station was established at the headquarters of General Wheeler at the American trenches on San Juan Hill. From this point the line was afterward carried right and left to the headquarters of Generals Lawton and Bates, respectively, thus connecting by wire the center and both flanks of the American trenches with America.

Of the conduct of the detachment, Major Stevens says he can not speak too highly of the men and general situation:

They were not only intelligent and without thought of comfort or self, but anticipated everything. It was a great pleasure to me to serve with these men. Many of the men were under fire at some time, and I experienced the pleasure of hearing officers voluntarily speak very highly of them. In all the work done by my detachment everything went smoothly, and the establishing of the line was accomplished without a setback.

The insulated wire enabled the line to be built. With iron wire and no equipment the line would have been not only endlessly delayed, but have given much trouble, if successful at all.

The operators were busy day and night, and assisted during the day in laying lines; even a guard was used on two nights at the sugar mill station, so that the men were pretty thoroughly worked. I can not make mention of individuals in the detachment, as the men were all so gratifying in their behavior that I was proud of them and of the corps.

The number of men was far too small for the attendance on the corps had the campaign proved more extended. The men could not stand a lengthy continuance of such effort in the climate. Indeed, the fortunate supplying of the "insulated pliable wire" and the jungle enabled us to accomplish the work with celerity.

Major Stevens, being invalided by yellow fever, was unable to render his report to Lieutenant-Colonel Greene, to which it is now attached, and it was rendered later direct to the Chief Signal Officer.

In connection with the attack of July 1, division and other separate commanders were provided with two suitably equipped signal men. Lieutenant-Colonel Greene reports concerning this work as follows:

On July 1, at 4.30 a. m., Captain Stevens and Lieutenant Burnell, Signal Corps, with a detachment of signal men, began extending the telegraph line from the headquarters camp to the front, a work of great difficulty, as the single, narrow road was

crowded with troops marching to the front; but by perseverance the line was pushed forward in the brush well to one side of the road, so that it might not be disabled. Understanding that the advance headquarters were to be located at E. Poso, I proceeded to that point early in the morning for the purpose of locating the station. It was intended to place the instrument in the abandoned hacienda of El Poso and by 8 a. m. the wire was at that point; but, located as it was, upon lower ground and some 150 yards in the rear of Loma del Poso, upon the crest of which Grimes's battery was in position, and in the line of fire from the enemy's battery replying to Grimes's, it was soon evident that the telephone could not be maintained there, so the line was recovered and the instrument located in the shelter of the bank of the Aguadores (San Juan) River, alongside the Sevilla-Santiago road, some 250 yards to the north of El Poso. The latter part of the work was performed under a smart shower of shrapnel, which continued more or less in the vicinity of the station all day. From the station orders were sent and received all day, and the line was carefully and constantly patrolled to guard against interruption.

On July 3 the line was extended to the foot of what is known as San Juan Hill, where were the headquarters of Generals Wheeler and Kent; thence to the headquarters of General Lawton, upon the right of the line of investment, and subsequently a branch line built from General Wheeler's to General Bates's headquarters, on the left of the line of investment.

It thus appears that throughout the critical period of the campaign the Signal Corps kept General Shafter in direct communication by telephone with his subordinate commanders, and that these lines were uninterruptedly maintained under fire and during the progress of battle.

The value of the Signal Corps in directing the fire of the Navy is shown by the following extract:

On July 7 I went to the mouth of the Aguadores River, found the telegraph line along the coast between that point and Siboney in good condition, and located and established a station about 1 mile east of the railroad bridge, in a position screened from the fire of the batteries and rifle pits upon the Spanish side, right bank of the river. Afterwards, during every bombardment of Santiago by the fleet, the plotting of the fall of the shots in the city were telephoned from the station near Loma San Juan to the commanding general, whose directions as to range and direction were in turn telephoned direct to Aguadores and flagged to the admiral.

As to later operations, Lieutenant-Colonel Greene says:

Capt. G. W. Butler, with the Eighth United States Volunteer Signal Corps, reported at Siboney on July 9, and his men were placed on duty at Aguadores, Daiquiri, Siboney, and the ammunition camp. From this time to July 17 the line was constantly maintained in working order over its entire length, comprising the line of investment with a line extending from the middle thereof through the corps headquarters and different supply camps to Siboney, the land line from Aguadores to Daiquiri, and in addition the French cable from Siboney to Playa del Este, which has been seized temporarily by the United States, all the operators being soldiers of the Signal Corps. Those at the front worked and lived in mud and took their share of all hardships and exposure to fire with the remainder of the Army.

Upon July 17, immediately after the occupation of Santiago de Cuba, the Spanish military telegraph line from Santiago was tapped at the junction of the Caney and Sevilla road and extended into corps headquarters and communication opened, and afterwards, as required, the different camps were connected by telephone.

Concerning this telegraphic and telephonic service, which did not fall within the plans of the major-general commanding the Fifth Army Corps and for which he made no provision, the Chief Signal Officer of the Army feels it incumbent upon him to point its absolute military necessity and value, and to indicate the extraordinary risk which any general commanding a detached army, especially one serving on a foreign soil, assumes when he leaves himself unprovided with telegraphic or telephonic facilities.

Through the volunteer work of the Signal Corps no failure occurred in telegraphic communication. On the one hand, the major-general commanding the Fifth Army Corps reached by telephone points on the right, center, and left of his line within 400 yards of the enemy, and communication with his subordinate commanders was not only possible

at all times, but was continuously maintained, as these lines worked twenty-four hours in the day. On the other hand, the major-general commanding the Fifth Corps was able to communicate directly with the admiral commanding the fleet through the telephonic station near Aguadores. In addition, the War Department, with all its bureaus and the supply depots of a great nation, were within twenty minutes of the general commanding, so that any deficiencies of equipment could be asked for or reinforcements requested; and further, he was able to keep in touch with the President, the Secretary of War, and the Commanding General of the Army, so as to receive at critical moments such advice, encouragement, or assistance as might advance the interests of the campaign.

It may be insisted that, apart from the value and effect of potent words of inspiring confidence which passed from Washington over these wires in the gloomy hours of the siege, these lines were worth more to the nation in the single month of July than has been the cost of the Signal Corps of the Army from its inception in 1859 to the present day. No one can say how long our success would have been delayed at Santiago, with the Spanish fully equipped with telegraphic and telephonic communication, had the commanders of the American Army been unable to communicate with each other, with their supply depots, or with the cooperative fleet, save by the medium of their few mounted men, when hours, instead of minutes, must have elapsed before important orders could be given or answered. In addition, it is not pleasant to surmise what might have been the fate of the fever-stricken army near Santiago de Cuba had its fortunes and movements been debated by mail instead of by electrical communication.

MILITARY BALLOONS.

The necessity of balloons for reconnoitering purposes, especially in a level or wooded country, is universally recognized by military experts. All efforts to obtain special appropriations for the use of the balloon section of the Signal Corps having failed in past years, the beginning of the war found the Signal Corps provided with only one balloon, manufactured by members of the corps by hand, for which the cheapest possible accessories had with difficulty been obtained from the limited appropriation of the Signal Corps.

After the war began, while inability to promptly obtain funds, conjoined to the fact that everything connected with a balloon has to be manufactured to order, made it necessary to confine active balloon operations to the material already on hand, yet balloons, generators, compressors, and steel tubes were ordered as soon as an allotment was made. These, however, did not reach Tampa until the expedition was aboard transports, and so were too late for the Santiago campaign.

The balloon work was intrusted to Lieut. Col. Joseph E. Maxfield, United States Volunteer Signal Corps, a captain in the Regular Corps, whose report forms Appendix 5, and it is to his energy, professional skill, and ability that the successful operation of the war balloon at Santiago de Cuba is due.

Overcoming almost insuperable difficulties at Tampa, Fla., the balloon with its accessories, such as generator and reserve hydrogen gas compressed in steel tubes, were assembled and loaded on the transport *Rio Grande* in three days. When the Fifth Corps disembarked, June 22, the orders of the commanding general prohibited the balloon detachment from landing, and it remained on the transport until June 28, when it was ordered ashore. On June 27 urgent verbal orders were

given by the commanding general of the Fifth Army Corps to Lieutenant-Colonel Greene that the balloon detachment should instantly land and proceed to the front for the purpose of making a balloon reconnaissance. Lieutenant-Colonel Maxfield immediately requested authority to land the gas generator with the necessary material for inflating the balloon, thus holding the compressed gas stored in the steel tubes for reserve. The commanding general refused, and operations began by drawing immediately on the reserve gas, whereby only one inflation of the balloon was possible instead of a dozen, which could have been had by following usual methods. The balloon detachment reached the headquarters of the commanding general at Siboney on the night of June 28, and it moved with these headquarters on the 29th. The lack of proper facilities for storage during the voyage and the extreme heat had impaired the balloon, which was an old one, and when fully spread it was in such condition that its use for ascensions in times of peace would have been considered unsafe. Temporary repairs were speedily completed and three ascensions made on the afternoon of June 30—the first by Lieutenant-Colonel Maxfield and Sergeant Ivy Baldwin of the Signal Corps, the second by Lieut. W. S. Volkmar, Signal Corps, and General Castilla, of the Cuban army, the third by Lieutenant-Colonel Maxfield and Chief Engineer Officer Derby of the Fifth Army Corps. These ascensions resulted in an increased knowledge as to the direction and course of such roads and streams directly in front of the Army as had remained undiscovered during the previous week. Lieutenant-Colonel Maxfield says:

The fact that the Spanish fleet of Admiral Cervera was in the harbor of Santiago was at last definitely settled. It could not be determined, however, how strongly the fortifications in our front were held, nor could they be located except with the greatest difficulty. A most flattering verbal report as to the value of the balloon in war was made by the chief engineer officer to the commanding general, with the recommendation that it be employed during the battle for the next day.

That evening verbal orders were brought to Lieutenant-Colonel Maxfield by the chief engineer officer of the Fifth Army Corps from the commanding general to report with the balloon at as early an hour as practicable at El Poso, which was to be the headquarters of the commanding general during the battle, and that there he would find the chief engineer officer, who would accompany him in the ascents.

Reporting on the morning of July 2 at El Poso, Lieutenant-Colonel Maxfield says:

Upon reaching the summit of the hill none of the officers attached to headquarters were visible, and it was found that the hill was covered by a slow but remarkably accurate shrapnel fire from the enemy's guns. [Here his horse was shot under him. He continues:] The balloon was carried to a place in the river bottom about a quarter of a mile to the rear and an ascent made, Colonel Derby and myself occupying the basket. From this point a message was sent to the adjutant-general of the corps, setting forth the movement of the troops at El Caney and upon the road to our front which led to the hill of San Juan. Under orders from the chief engineer officer the balloon was then pulled down to within a few hundred feet of the ground, the occupants of the basket still remaining in it, and towed toward the front until a more suitable position for viewing the intrenchments at San Juan could be found. It was supposed that the balloon would be halted at El Poso and that point taken as a station for the balloon detachment, as had been originally intended. As this was not done, a statement was made by me as to the result of artillery firing at balloons in experimental work abroad and the conclusions to be drawn from such, and the fact stated that in my opinion it was unwise to carry the balloon farther to the front. No formal protest, however, was made, as it was felt that the chief engineer officer was the representative of the commanding general and that his desires were to be carried out. As a consequence, the balloon was carried rapidly to the front until it was immediately in the rear of the troops, who were then deploying for an attack upon the blockhouse and trenches on the San Juan Hill. As no further progress to the front could be made, the balloon was then

carried across the bed of the San Juan River and into a large meadow just to the right of the road and the river. In passing through the trees and brush along the river banks the ropes holding the balloon captive became badly tangled in this brush, and no movement for a time was possible, nor, for the same reason, could the balloon be given the necessary elevation to enable it to do its best work. Nevertheless, from this point the fact was determined that the intrenchments on the San Juan Hill immediately in our front were strongly held, and a message to this effect sent to the commanding general, with the suggestion that the artillery upon the hill at El Poso should reopen its fire upon them. This was done. The attention of the occupants of the basket was given almost solely to an examination of the ground held by the enemy and that immediately in their front, and it was impossible for that reason to state what was the disposition of our own troops in the immediate vicinity, most of whom were hidden by the brush. It was noticed, however, that dismounted cavalry were deploying in the open meadow in which was the balloon, about 50 yards in front. It was at that time that the enemy opened fire. This fire appeared to be musketry only. In a very few moments it became apparent that the balloon had been struck, as there was a decided loss of gas, and the rope having not yet been cleared from the brush, I gave orders that the balloon should be pulled down, hoping to be able to disentangle it, carry it over to the rear, repair the holes in it, and replace the lost gas from the tubes which still remained full. This order was obeyed, and for twenty or thirty minutes the detachment was busy endeavoring to disentangle the captive cord and extend it along the bed of the river. During this work the detachment was exposed to a heavy musketry fire, from which they were fortunately well sheltered by the banks of the river, and, although the leaves often fell in showers from the bushes and trees overhanging the bank, but one man, Private Haywood, Signal Corps, United States Army, was struck. He received a wound in the foot. An examination of the balloon having shown several holes in the upper portion and the loss of so much gas as to render the future use of it impossible, orders were given to secure it and to retreat along the river bottom. This was done.

A new balloon, meanwhile, had been shipped to Lieutenant-Colonel Maxfield, when he was informed by the commanding general of the Fifth Corps that no further work of the balloon detachment would be necessary during the campaign, and this officer returned with balloon-gas tubes to Tampa to prepare for the Porto Rico campaign.

The operation of the Signal Corps balloon has been the subject of official comments that necessitate attention.

As to the utility of the balloon, Lieutenant-Colonel Maxfield states:

On July 1 at least two items of information of value were obtained by the use of the balloon. These were as follows: First, the fact that the intrenchments at or near the hill of San Juan were strongly held by the enemy. The obtaining of this information resulted in the opening of fire by the battery at the hill of El Poso earlier than would have otherwise been the case. Second, as shown in the official report of Brigadier-General Kent, commanding First Division, Fifth Army Corps, as quoted hereafter.

Brig. Gen. J. F. Kent, commanding First Division, in his report on July 7, 1898, says:

We were already suffering losses caused by the balloon near by attracting fire and disclosing our position. The enemy's infantry fire, steadily increasing in intensity, now came from all directions, not only from the front and the dense tropical thicket on our flanks, but from sharpshooters thickly posted in trees in our rear and from shrapnel apparently aimed at the balloon. Lieutenant-Colonel Derby of General Shafter's staff met me about this time and informed me that a trail or narrow way had been discovered from the balloon a short distance back leading to the left to a ford lower down the stream. I hastened to the forks made by this road, and soon after the Seventy-first New York Regiment of Hawkins's brigade came up. I turned them into the bypath indicated by Lieutenant-Colonel Derby leading to the lower ford, sending word to General Hawkins of this movement. This would have speedily delivered them in their proper place on the left of their brigade.

Judging from his report on July 25, 1898, Major-General Breckenridge was not fully informed as to the object and management of the Signal Corps war balloon, and evidently was unaware of the valuable information obtained therefrom. He says:

A balloon was sent down with this army, but its practical value was not demonstrated. This is a difficult country in which to see moving troops or anything of

that sort, even from a balloon, on account of the thickly wooded nature of the country. On the 1st of July the balloon accompanied a marching column and drew much of the fire from the Spanish position, and some casualties resulted from this fire among the troops coming along the same line as the balloon.

Under these circumstances it is necessary that the Chief Signal Officer shall state exactly the above facts, which demonstrate, first, that the balloon proved its utility; second, that the forcing of the Signal Corps balloon to the skirmish line, where its position is reported to have caused serious loss to the troops by disclosing their movements and attracting the enemy's fire, was the action of Major-General Shafter, through his chief engineer, Col. George McC. Derby, in the face of professional advice given him by Lieutenant-Colonel Maxfield of the United States Volunteer Signal Corps, who was charged with the practical operation of the balloon, and who, besides sharing absolutely every danger to which Colonel Derby was subjected, in addition had his horse shot under him in a previous reconnaissance of the grounds.

Whether the valuable information obtained in this ascent could have been obtained with the balloon at a safe range in the rear is not within the knowledge of the Chief Signal Officer, nor is it within his province to decide whether or not the information obtained was sufficiently valuable to compensate for the loss of life involved therein. It is sufficient to call attention to the fact that the official reports above quoted fully demonstrate the utility of the balloon, and that, despite the unsuitable character of the balloon and its imperfect accessories, its operations were successfully conducted. That it was kept on shipboard unused for a week was not the fault of this Corps.

Although the excellent conduct of the Signal Corps on this occasion was not officially noticed in the official report of the commanding general of the Fifth Army Corps, the Chief Signal Officer calls attention to the fact that while the signal corps is not a part of the fighting force of an army, and the operations of the balloon detachment are supposed to be conducted without the range of the musketry fire, yet no man failed to do his duty under fire. In his report Lieutenant-Colonel Maxfield says on this point:

It is with pleasure and pride that I refer to the conduct of the small detachment under my command in the field. Second Lieut. James R. Steele, United States Volunteer Signal Corps (since dead), performed his duty in the same quiet, thorough, and faithful manner which has marked his entire previous career in the Signal Corps. Second Lieut. Walter S. Volkmar, United States Volunteer Signal Corps, proved himself to be an energetic and courageous young officer. The entire command bore itself well, not only under fire, but also during the days of hard work and privation which followed. To Sergt. John Kennedy, Signal Corps, United States Army, praise is due for display of courage and uniform cheerfulness which did not fail to have its effect upon the entire command.

The character of the outfitting work of the Corps is shown by the following extract from the report of Lieutenant-Colonel Maxfield:

In spite of the difficulties met with, however, it can be said that within five weeks after the declaration of war the Signal Corps was able to put a fully armed balloon train in the field, and that by the time the companies of the Volunteer Signal Corps had been organized and were ready for service another train was practically completed. At the time of the cessation of hostilities one set of equipment was at Santiago de Cuba, with all the necessary apparatus and material for making balloon ascension, although work could not have been done with it as rapidly as would have been the case had a fresh supply of tubes containing compressed gas been available. Another balloon section was at Tampa likewise fully equipped.

The Signal Corps failed to receive from Major-General Shafter in his original report even a notice that it participated in the Santiago campaign, and this Corps did not share in encomiums such as were bestowed by him on the other staff corps for their efficient service at Santiago.

It is hoped that this resulted from the natural wish of the commanding general of the Fifth Corps to defend other departments from unwarranted criticisms leveled at them and not with the distinct purpose of discriminating against a Corps that has so far escaped adverse comment. It was certainly invidious to assign charge of this balloon, which pertains to the Signal Corps, to an engineer officer who, responsible for its destruction, is recommended for brevet for having ascended in the basket with the signal officer who was in charge of it, while the latter officer, naturally responsible for its safety and proper management, is excluded from praise or management. However, in his later indorsement on the official report of Lieutenant-Colonel Maxfield the commanding general of the Fifth Corps says:

The service rendered by the balloon detachment, as well as the whole of the Signal Corps, was satisfactory.

TELEGRAPH CENSORSHIP.

There has been a misapprehension on the part of many that the Signal Corps exercised a press censorship during the war, an opinion that is entirely unfounded, as the Chief Signal Officer ignored all suggestions looking to interference with the free and untrammelled publication of press matter, even by the most sensational and unpatriotic of journals. It may be added that the Associated Press, the Sun Press Association, and many of the leading journals, in a most patriotic spirit, expressed freely and frequently not only their willingness, but also their desire to refrain from the publication of any information that would embarrass the Administration or be detrimental to the success of military operations. These offers were not Pickwickian, for in more than one instance information of the highest interest to the public has never been published to this day, being held secret by press associations, newspaper correspondents, and editors, as calculated, if given publicity, to injure the national cause.

What the Chief Signal Officer of the Army really exercised was a censorship of all matter which passed over such telegraph cables and land lines as were militarily occupied by the Signal Corps in accordance with instructions from higher authority. The lines also occupied were the land lines of Florida, every cable (six separate systems) extending from the United States to any foreign country, the French cable on the south coast of Cuba, and the English cables in Porto Rico and Santiago, and the Cuba submarine cables at Santiago de Cuba. Most of these telegraph lines were only constructively seized, the Chief Signal Officer taking the responsibility, which he believes to have been the most effective method, of intrusting the direct censorship of messages, under the general supervision of an officer of the Signal Corps, to the respective superintendents, men of high character, whose good faith was guaranteed by the companies whose interests they likewise guarded. The interests of the United States were thus subserved while the privacy of the affairs of the companies was conserved.

The response of the several telegraph and cable companies to the demands of the United States, through the Chief Signal Officer, was gratifying in the extreme. The Western Union Telegraph Company suffered the most financially, owing to the almost total destruction of its West Indies traffic over the Key West-Havana cables, yet through its president, Gen. Thomas T. Eckert, whose effective patriotism during the civil war is part of the history of the country, it placed on all occasions the counsel, skill, and aid of the company's agents everywhere at the free disposal of the Government when needed. Mr. James

A. Scrymser, president of the Mexican Telegraph Company, contributed his own great professional knowledge and the active cooperation of his company in many ways to the benefit of the nation. The Commercial or Postal Telegraph Company, by its president, John W. Mackey, pledged itself to full and patriotic action in harmony with the wishes of the United States. The United States and Haiti Cable Company accepted with the best of feeling the strict supervision that was necessarily exercised over its cable between New York and Haiti, and its officers placed at the service of the Government its most reliable and experienced operators. The French Telegraphic Cables Company, through M. Louis A. Lurienne, gave the strongest possible evidence of loyal and faithful compliance with the requirements of the United States, acceptable evidences that the hospitality shown by the Government to this company was appreciated. During the critical period in Cuba this company strove to fulfill its obligations as a neutral corporation, although most trying and difficult conditions obtained with a Spanish military censor at its office in Santiago and an American military censor at Playa del Este. The Direct Cable Company, Mr. James Brown superintendent, and the Anglo-American Cable Company, Mr. Charles Trippe superintendent, both accepted the situation with a spirit of good will to the United States and of straightforward conduct and earnest effort to carry out the censor's orders that were none the less gratifying that they came in obedience to instructions from "our kin across the sea." The West India and Panama Telegraph Company (an English corporation) and the Cuba Submarine Company were necessarily committed to Spanish interests, owing to their franchises and subsidies from Spain, but they accepted with good faith and in proper spirit military control coincident with the American occupation of Cuba and Porto Rico.

The authority under which the Chief Signal Officer exercised censorship rests on that proviso of law which vests in the Chief Signal Officer of the Army the control and operation of military telegraph lines, and as soon as these cables and lines were militarily occupied by the United States, it fell within his province to fix the order of business and to decline such messages as were prejudicial to the military interests of the United States.

As correspondence with Spain and her colonies was discontinued by mail, so also was correspondence by telegrams, except such as fell within diplomatic privileges. Cipher dispatches by wire were also forbidden to and from any part of the West Indies, as otherwise information injurious to the United States would have been possible. Personal and commercial messages in plain text were permitted unless they contained injurious information, such as military or naval operations contemplated or then progressing. The policy followed looked to the least possible interference with domestic or commercial affairs. It thus occurred that messages passed freely over occupied lines, even in and out of Havana or, at times, of Santiago.

The Chief Signal Officer was not oblivious of the fact that secret information could be sent in plain text by concerted code, but it is to be said that while such messages were frequently accepted, it was often the case that they went quietly into the waste basket and not over the wires to the proposed destination. On the other hand the Chief Signal Officer appreciated fully the advantages to be derived from careful examination of the thousands of messages of unfriendly or neutral character that passed through the hands of his subordinates. From newspaper correspondents, blockade runners, Spanish agents, commercial messages, personal dispatches, etc., there was reaped a rich harvest

of information. It would be boastfulness to say that these sources of information were fully exploited by the Signal Corps, but it is unquestioned that much was learned that proved of inestimable value to the United States. Col. James Allen, Lieut. Col. Joseph E. Maxfield, and Lieut. Grant Squires, in their capacity and service as telegraph censors, gained in order named the most valuable information. The intelligence and ability of these officers were applied with such persistent zeal in the performance of their duties that they rendered service of the greatest possible value to the Government.

The operations of American fleets in Cuban waters, the success and plans of blockade runners, the presence and activity of Spanish agents, the movements of Spanish ships were among various matters concerning which information reached the proper authorities through the Chief Signal Officer of the Army, not only hours, but even days, in advance of information through the ever active and almost ever-present correspondent, and in some instances the information gained was solely by the exertion of the Signal Corps.

The most striking illustration of the value of information thus gathered is the fact that out of the Signal Corps cipher messages that reported the arrival of Admiral Cervera's fleet in Santiago Harbor flowed the conception of the Santiago campaign, the turning point of the war. There have been so many incorrect reports regarding the locating of Admiral Cervera in Santiago Harbor, and of his being blockaded or "bottled up" therein, that in the interest of history, let alone justice to the Signal Corps of the Army, the truth should be told. The location of Cervera's squadron at Santiago was first made by Col. James Allen, and later verified independently by Lieut. Col. Joseph E. Maxfield, both officers of the Signal Corps. The blockading of Cervera's squadron was due to the concerted action of the President and Secretary of the Navy, based on reports and representations made personally to them by the Chief Signal Officer of the Army. Secretary Long, alive to the situation, in an official dispatch, says: "All military and naval movements depended upon that point (the presence of Cervera in Santiago Harbor)."

On May 19, Admiral Cervera entered the harbor of Santiago with his squadron. That very day Colonel Allen telegraphed in cipher to the Chief Signal Officer: "Five Spanish vessels arrived at Santiago de Cuba. Have notified admiral commanding (Sampson). The Spanish flagship arrived Santiago de Cuba. The admiral (Cervera) hastily wired Madrid." On the following morning he added the following information: "Palayo and four cruisers in Santiago. No destroyers or torpedo boats arrived there." This information was communicated immediately to the President and by his orders to the Secretary of the Navy, who, being impressed by the assurance of the Chief Signal Officer of the Army as to the entire reliability of this report, proved himself equal to the emergency and on that very day gave such prompt and effective orders as resulted in the blockade of Santiago and the ultimate destruction of Cervera's fleet.

Colonel Allen furnished almost daily cipher reports from Santiago sources. On the 23d he reported that the Spanish squadron was short of coal and could not renew its supply at Santiago. His later information, that unarmored American cruisers passing up and down the coast were mistaken by the Spanish for the main American fleet, proves the wisdom and efficacy of Admiral Sampson's orders by cable that the fast unarmored cruisers of the Navy should perform scouting duty off Santiago. Cipher messages of the 23d stated correctly that Admiral

Schley was that day at Cienfuegos and Cervera was at Santiago. Meanwhile the Navy had been unable to verify the fact of Cervera's presence at Santiago, and as a result the correctness of the information furnished by the Signal Corps was sharply questioned. The Chief Signal Officer, being informed that the whole campaign was being conducted upon his representations, was asked to verify this information from other sources, if possible. Prompt action was taken by the Chief Signal Officer, who adopted such lines of operations that thereafter there was scarcely a day that he was not in possession of information of some kind or other coming over one or more of the six cables leading out of Santiago. Lieutenant Colonel Maxfield, then in charge of the telegraphic censorship in New York, carried out special injunctions of the Chief Signal Officer so successfully that he was able in twenty-four hours to confirm from separate and absolutely certain source the fact that Cervera was still in Santiago. This confirmation, received from Lieutenant Colonel Maxfield, greatly lightened the burden of responsibility borne by the Chief Signal Officer, which, however, did not fully disappear until the tenth day after the entrance of Cervera's squadron in Santiago, when his presence was first confirmed from naval sources.

It is an interesting anticlimax that when Cervera's squadron was destroyed on July 3, Colonel Allen, the same officer who originally reported the arrival of the fleet on the very day it reached Santiago, likewise reported by telegraph to the Chief Signal Officer the fact that the entire fleet had been destroyed, which information was conveyed to the President and country fourteen hours in advance of any other official advice.

Various conflicting reports were made during the war as to telegraphic isolation of Cuba. The Chief Signal Officer was kept daily advised of the situation, and, in fact, Captain-General Blanco was never unable to communicate over friendly lines with the Spanish Government at Madrid except during two days, when the cable operators left Santiago. The reentry of these operators, by permission of General Shafter, restored Generals Toral and Blanco to the telegraphic facilities they previously enjoyed over one cable, which could not be located, and which, save for two days, was operated throughout the war between Santiago de Cuba and Kingston, Jamaica.

In connection with the duties of telegraph censor, the Chief Signal Officer was struck with the patient patriotism displayed almost universally by business men of the country, whose operations abroad were necessarily conducted under conditions of increased cost and impaired secrecy. Whatever sacrifices the Government asked, almost to a man they were ready to make, and their general action sets in strong relief the conduct of the very few for whom the war seemed only an opportunity to decry their own or to turn all to gain.

The report, Appendix 6, of Lieut. Grant Squires furnishes details as to the telegraphic censorship at New York, the real center of telegraphic information.

THE PORTO RICAN CAMPAIGN.

The general charge of the Signal Corps work of this campaign devolved on Col. James Allen, United States Volunteer Signal Corps, who was serving on the staff of Maj. Gen. Nelson A. Miles, Commander of the Army of the United States. The Signal Corps men operating therein consisted of six organizations, Fourth, Fifth, Seventh, and Ninth Volunteer Signal Corps companies and companies A and D of the regular force. Of these, three served under Lieut. Col. W. A. Glass-

lord, chief signal officer, First Army Corps, and three under Lieut. Col. Samuel Reber, attached to the Headquarters of the Army.

Colonel Allen's general report and the detailed report of Lieutenant-Colonel Reber furnish information in full as to the operations of the Signal Corps in the Porto Rican campaign.

Lieutenant-Colonel Reber's command on the *Stillwater* entered the harbor of Guanica, where the U. S. S. *Gloucester* had just cleared the shore. Establishing communication with the beach, he pushed forward his advance outposts, and hereafter that portion of the army was in constant communication with the Headquarters of the Army, to which all movements of troops were communicated and from which all orders and instructions were given over the lines of the Signal Corps. An advance line was run from the beach to the suburbs of Guanica the first day, and as the outposts moved toward Yauco July 28 the line was extended to that point. Under orders of Major-General Miles of that date to build telegraph lines from Yauco and open communication with Ponce, Lieutenant-Colonel Reber commenced operations with the flying telegraph train, and pushing on to Yauco with twenty men of the Sixth Massachusetts Volunteers reconnoitered the route and occupied the town on July 28. At Yauco it was discovered that the telegraph instruments and appliances had been destroyed by the enemy, but utilizing such portions of the Porto Rican lines as were standing and filling the gaps from the Signal Corps material communication was opened to Ponce on July 29.

The Fifth Signal Corps company landed on July 28 at the Playa de Ponce, occupied the telegraph office at Ponce that afternoon, and ran a line to the railroad station, while the Ninth company was disembarked the same day and took possession of the Spanish office at Playa and put the line in good order to the telegraph office in Ponce.

Upon the occupation of Ponce, Colonel Allen proceeded to St. Thomas, where satisfactory arrangements were made with Mr. Ross, superintendent of the West India and Panama Cable Company, for operators and instruments, whereby cable communication could be had with the United States via St. Thomas and Jamaica, or via St. Thomas and Martinique. As a result of Colonel Allen's efforts, and through the courtesy of Mr. Henry B. Chamberlain of the Chicago Record, cable employees were landed at Ponce on July 31 and communication established with Santa Cruz. Although the operations of the Signal Corps looked to field work, and so contemplated only the construction of flying telegraph and telephone lines, yet the ingenuity of its officers and men enabled it to put in prompt repair the permanent telegraph lines which had been abandoned by the enemy after destroying the instruments, batteries, and repair material.

The extension of lines along General Brooke's march from Guayama was under the personal direction of Lieut. Col. W. A. Glassford with the Fourth and Seventh Volunteer companies and Company A of the Regulars. Communication to the westward to Ponce was made over the repaired Spanish telegraph line from Guayama. As General Brooke's corps advanced, Colonel Glassford's skill and energy insured uninterrupted telegraph communication from Ponce via Guayama and Arroya to the outposts of the First Army Corps.

The extensive system of lines centering at Ponce was under charge of Lieut. Col. Samuel Reber, who was assigned the task of keeping up communication with General Wilson's command to the Fifth company, Capt. W. H. Lamar. The Ninth company had divided duties, Lieutenant Davenport being in charge of the central office, while Lieutenant

Woodard skillfully maintained communication with General Henry's command as it advanced via Adjuntas to Utuado.

Later Capt. O. O. Clark, with Company D of Regulars, displayed great energy in opening up, after the peace protocol was signed, telegraphic communication from Ponce via Mayaguez with General Schwan's command, with which it was at first deemed unnecessary to establish telegraphic communication. A pleasing example of the versatility of the American soldier was the action of Lieutenant-Colonel Reber in replacing destroyed instruments. Visiting a workshop, he personally made out of a brass sugar kettle a switch board that, save under close inspection, seems to be of standard manufacture, and through it were sent thousands of messages from army headquarters. The ability, zeal, and resourcefulness of Lieutenant-Colonel Reber insured a rapidity of action and efficiency of service that were highly creditable to that officer and the Signal Corps.

The extent and character of the work done by the Signal Corps under the direction of Col. James Allen, United States Volunteer Signal Corps, who had general charge of all Signal Corps operations, may be considered as a typical instance of the methods by which the Signal Corps operations of a great army should be conducted. The results obtained in Porto Rico, whether considered from an administrative standpoint or from a strategical point of view emphasize the indispensability of electrical communications in any serious campaign. Colonel Allen's work added to the laurels he had already gained by his extraordinarily efficient service on the south coast of Cuba. The extent of the work may be estimated from the fact that over the wires at Ponce alone there were sent and received no less than 4,613 messages within twenty-one days after the occupation of the city.

At Ponce was established the headquarters of the military telegraph system, which reached the cable of the West India and Panama Cable Company by a loop to the cable box at Playa de Ponce and Guanica; to the west by a branch line. To the westward General Schwan's headquarters were reached through offices at Yauco, Subana Grande, San German, Cabo Rojo, and Mayaguez; to the northwestward General Henry's command by offices at Adjuntas and Utuado; to the northeast General Wilson's command by offices at Juana Diaz, Coamo, and at the outposts in front of Aibonito; to the eastward General Brooke's command by offices at Guayama, Arroya, and at his outposts. The whole system aggregated about 170 miles and covered nearly one-half the territory of Porto Rico.

The efficiency of the system is shown by the speedy manner in which the general message regarding the peace protocol was handled by Lieutenant Davenport, whose work as manager in charge of the line at Ponce was admirably done. The cablegram was received August 13 at 10.34 a. m. in the main office and reached army headquarters at Ponce at 10.37 a. m. The orders of Major-General Miles, commanding the Army, to Generals Brooke, Henry, and Wilson, directing suspension of hostilities were written, filed, and delivered to them by 11.10 a. m., just in time to prevent a renewal of active hostilities. The message to General Schwan was necessarily sent by a courier from Yauco, reaching him at daylight on the morning of the 14th at a point 20 miles northwest of Mayaguez.

The officers and men of the Signal Corps in this campaign were alert to secure valuable information, which was promptly transmitted to the commanding generals, and they acted as scouts. Lieutenant-Colonel Reber in this way occupied Yauco, and Captain Lamar, with General

Stone pushed on to Utuado, about 15 miles from the north coast. In establishing advance telephone stations at outposts the Signal Corps kept pace with skirmishers and performed this important duty under fire of the enemy.

PERMANENT MILITARY TELEGRAPH LINES.

Situated almost entirely along the Mexican frontier or running to the heart of the great Indian reservations, the permanent military telegraph lines of the United States aggregate about 900 miles in length (Appendix 7). They have been regularly operated almost without interruption, despite the fact that they were stripped of Signal Corps sergeants at the commencement of the war. They were then, however, in the best possible order, through the activity of the Signal Corps, so that their temporary transfer to a force largely civilian has not resulted in material impairment of service, although they have suffered deterioration. The expense of their maintenance has been largely increased, owing to the necessary replacement of signal sergeants by civilian operators. A general overhauling of the lines has been impossible except at great expense, but will be undertaken on the return of military garrisons and signal men to various posts. The charge of these lines has devolved upon the following departmental signal officers, whose duties have necessarily kept them from active campaigning, but nevertheless the manner in which they have performed their work is deserving of special commendation from the Chief Signal Officer of the Army, who mentions in this connection the names of Capt. Eugene T. Wilson, United States Volunteer Signal Corps, Department of California; Second Lieut. Edward L. King, Eighth United States Cavalry, Department of the Colorado; Capt. Frank L. Dodds, acting judge-advocate, Department of the Gulf; Second Lieut. Walter L. Clarke, United States Volunteer Signal Corps, Department of the East.

FLYING TELEGRAPH LINES.

The temporary occupation as camps of certain points by the volunteer forces of the United States necessitated the construction, maintenance, and operation of telegraph and telephone lines for purposes of administration. These were almost invariably flying telegraph lines, constructed according to plans in vogue for drill purposes in times of peace, though in most instances telephones have replaced telegraph instruments. These lines are usually of No. 14 galvanized-steel wire, suspended by 16-foot lances, to which the wires are hung by detachable india-rubber insulators.

At each separate camp, whether brigade, division, or corps, there has been erected an independent system of either or both telegraph or telephone lines (as shown by Appendix 8). The main office was located near the headquarters of the camp and afforded direct communication with headquarters of the subordinate commanders, the hospital, the commissary depot, the quartermaster stores, etc., and such other points as in the opinion of the commanding general were thought necessary for the prompt and successful administration of his command. In addition, direct communication was made with the adjacent commercial systems, whether telegraph office or telephone exchange.

It is admitted that it would have been impossible for the great camps of the country to have been properly administered without such electrical means of communication. This was especially true of camps such as Alger, George H. Thomas (Chickamauga Park), and Wikoff (Montauk

Point, N. Y.), where the area covered by the troops amounted to 20 square miles or more. Similar telegraphic and telephonic facilities have been arranged for the great military hospitals whenever desired by the Surgeon-General.

Among the officers of the United States Volunteer Signal Corps who have particularly distinguished themselves in the installation of electrical systems in the great camps there are to be specially mentioned for their ability, energy, and zeal: Lieut. Col. Richard P. Strong, at Camp Alger, Va.; Lieut. Col. W. A. Glassford, Camp George H. Thomas; Lieut. Col. George O. Squier, Camp George H. Thomas; Capt. A. Higgins, Camp Wikoff; Capt. Frederick T. Leigh, Camp George H. Thomas; Capt. Howard A. Giddings, Camp Cuba Libre; Capt. Carl F. Hartmann, Camps Alger and George G. Meade; Capt. Frank E. Lyman, jr., Camp Hamilton; Capt. Samuel S. Sample, Camp Shipp; Lieut. Alvar G. Thompson, Camp Poland; Lieut. Henry G. Opdycke, at Fort Monroe.

The extent of these lines and the importance of the business done may be gathered from the mere statement of facts that flying lines built for this purpose within the limits of the United States exceeded 250 miles in length, and that the messages received and transmitted over them aggregated hundreds of thousands in numbers.

The rapidity with which these lines were constructed, the efficiency with which they have been maintained and operated, and the successful manner in which they have been recovered for future use have elicited commendation and praise from the various commanders whose administrative purposes they have subserved. No complaint, either official or unofficial, has reached the Signal Office that has reflected in the least degree upon the operations of these lines, which, it is evident, are absolutely indispensable for administrative purposes in great camps and for strategical purposes during active campaigning.

The flying telegraph system, as devised and perfected by the Signal Corps, has stood the test of extended experience under diverse conditions both in these great camps and also under conditions of foreign campaigning, and it may be safely said that this system has developed no defects in time of war. It may, therefore, be accepted as a standard equipment, capable of rendering any communication service that the exigencies of war may demand.

It should be added that the successful installation and operation of these lines has been almost entirely due to the high degree of professional skill, patriotic zeal, and faithful attention to duty that has marked the service of officers and men of the United States Volunteer Signal Corps who have been charged therewith. The routine labor of garrison and camp are monotonous and fatiguing, but they have been fulfilled with the same fidelity to duty under these trying conditions as had characterized the work of their companions in arms who have been called to more active and inspiring service in the face of the enemy.

TELEGRAPH LINES OF CUBA AND PORTO RICO.

Immediately after the surrender of Santiago the Chief Signal Officer of the Army found that the labors of his corps were largely increased instead of diminished, and that it was necessary to increase the number of Signal Corps men in the new department of Santiago. This condition of affairs resulted from the fact that the telegraph lines of the western section of Cuba, as indeed for almost practically the entire island, were the property of Spain. These lines, partly owing to the disturbed conditions of Cuba during the past ten years and partly from

late military operations, were in such condition as to be practically useless. Whatever may be the ultimate policy of the United States concerning these telegraph systems, there was an urgent necessity for putting them in good condition, at least as far as they were required for military purposes. The Signal Corps of the Army is therefore repairing and operating such lines as Major-General Lawton, commanding the Department of Santiago, deems necessary for the purpose of military administration. Steps are being taken to secure a definite report as to the present condition, urgent necessity, and prospective utility of these lines, and a similar course will be followed regarding the lines in the eastern end of Cuba whenever it shall be occupied by the military forces of the United States. In any event it is certain that between 200 and 300 men of the Signal Corps will be necessary for the care and operation of Cuban lines needed for military administration. Since the creation of the Department of Santiago the care of these lines has devolved upon Capt. Jasper E. Brady, jr., United States Volunteer Signal Corps, whose professional skill and energy are rapidly placing the lines in this department in proper working order.

In Porto Rico practically the same conditions obtain. The telegraph and telephone lines were the property of Spain, but have now become the property of the United States. The telegraphic system of this island is shown by the map forming a part of the report of Lieut. Col. Samuel Reber, of the Signal Corps.

Major-General Brooke, commanding the military forces in Porto Rico, appreciates the importance of the efficient and successful administration of these lines. Realizing that the possibility of governing this island with a small military force is greatly facilitated by, if not dependent on, prompt and reliable telegraphic communication, General Brooke has officially reported that 100 men of the Signal Corps are necessary for the permanent garrisoning of the island, that is, that one out of fifty men of his command should be an electrician or a telegraph operator. Since the creation of Porto Rico into a department the charge of the telegraph lines has devolved upon Lieut. Col. William A. Glassford, United States Volunteer Signal Corps, whose long experience, professional skill, and great energy are confidently relied upon to administer these lines in the most efficient manner. Needful repairs are being made, and the lines are gradually resuming commercial business, and will be fully restored when the evacuation of the island of Porto Rico is completed.

CABLE TO PORTO RICO.

The transfer of Porto Rico to the sovereignty of the United States makes the subject of telegraphic connection between that island and this country one of unusual interest and importance.

At present the island is only reached over the cables of the West Indies and Panama Cable Company, an English corporation, which has certain concessionary rights. It certainly seems to be a matter of national import to secure direct communication between Porto Rico and the United States by a cable operated by an American corporation, or by the Government of the United States. At present the whole system of telegraph lines in Porto Rico is operated by the Signal Corps, the lines having become the property of the United States from the fact that they were owned and operated by Spain at the time of the military occupation of the island. Similar conditions obtain in Cuba, where the Spanish Government telegraphic system is gradually passing into the hands of the Signal Corps of the Army, in trust, for future disposition.

Inasmuch as the relations of Cuba and Porto Rico must become more and more intimate and important, it is recommended that the United States system of land lines in these two islands be connected by a deep-sea cable from Mayaguez, in Porto Rico, to Santiago, Cuba. This would connect the Cuban and Porto Rican systems. From Santiago, Havana will be ultimately reached by lines operated by the Signal Corps, and from Havana two American cables extend to the coast of Florida. By this means all communications between Porto Rico and the United States would pass over strictly American lines.

It is estimated that the cost of the cable between the points named, and the repair of connecting land lines, would not exceed \$600,000, and it is recommended that action be taken to perfect a telegraphic system as above outlined.

EXPERIMENTAL WORK.

The policy pursued in the past by the Chief Signal Officer in experimental work along lines of prospective value to the Signal Corps of the Army has naturally been interrupted by the war. Nevertheless, it has progressed as far as existing conditions have permitted.

Col. James Allen has devoted much attention to the system of wireless telegraphy with a view to the adoption by the Signal Corps of a suitable system whenever the progress of the invention and the conditions of the military service shall warrant such action.

Lieut. Col. George O. Squier, with the efficient cooperation of Prof. A. C. Crehore, has pursued, under the direction of the Chief Signal Officer of the Army, his investigation regarding the most effective manner of transmitting and receiving telegraphic messages. The discoveries made by these brilliant young physicists have reached a point where their utility and importance appear practically assured, and it is believed that their discoveries and inventions will be of great value to the commercial world, and incidentally to the Army. A summary of their experiments and observations form a part of this report.

The Department is under obligations to the Commercial Cable Company for the unusual facilities that it afforded Professor Crehore and Lieutenant-Colonel Squier for experimental work with the sine wave system of cable transmission. This company not only placed its cable between New York and Canso at the disposition of these physicists, but the officials of the company offered every courtesy, attention, and assistance that was possible, especially Mr. George Clapperton, Mr. Charles Cuttriss, and Mr. S. S. Dickenson.

REDUCTION OF VOLUNTEER FORCE.

As the Volunteer Army has been gradually reduced since the signing of the peace protocol, similar changes have taken place in the Volunteer Signal Corps. The extended and important duties imposed upon the corps by the peculiar conditions in Cuba and Porto Rico and the institution of a considerable number of camps within the limits of the United States, have, however, prevented a corresponding reduction in the Volunteer Signal Corps as compared to that of the Army as a whole. Six companies have been furloughed with the view to the muster out of the men and the honorable discharge of the officers. These are the Fifth, Seventh, Eighth, Ninth, and Fourteenth companies. As far as practicable, the reduction of the Signal Corps has been made from companies wherein a majority of the men desired to leave the service and return to their civil duties. The able, faithful, and zealous manner in which the officers and men of the Signal Corps have performed

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their duties, whether in the great camps within the limits of the United States, at the siege of Santiago, the capture of Manila, or in the occupation of Porto Rico, have been such as to merit the highest commendation and praise. As a recognition of this service, the Chief Signal Officer issued on September 13, 1898, the date of the earliest order of the muster out of a company, a general order which recited briefly the extent and character of their services during the war. This order forms an appendix (No. 9) to this report.

Attention is especially called to the health record of this corps, which up to the date of the above order for muster out, lost by disease in camp and field only 5, officers and men included, out of a total aggregate of 1,300 men.

OFFICE OF THE CHIEF SIGNAL OFFICER.

The unfortunate illness of Maj. (now Lieut. Col.) Robert Craig, Signal Corps, arising largely from overexertion in the line of his duties, left the Chief Signal Officer of the Army at the beginning of the war without any assistant, and these arduous duties, except the signing of checks, devolved on the Chief Signal Officer until the beginning of June, when Maj. Eugene O. Fechét, United States Volunteer Signal Corps, was appointed disbursing officer of the corps and Capt. Otto A. Nesmith, United States Volunteer Signal Corps, was assigned as Assistant to the Chief Signal Officer. The reports of Major Fechét (Appendix 10) and of Captain Nesmith (Appendix 11) give briefly an account of the work of this office which has been of an overwhelming character. The working force was suddenly reduced to one experienced clerk, supplemented by temporary appointments necessarily unskilled. The officers worked sometimes eighteen hours daily, Sundays included, and in addition to their ordinary desk duties were obliged to train inexperienced employees. Simultaneous with war conditions thousands of letters flooded the office.

The Chief Signal Officer has pointed out repeatedly in past years the fact that this office was undermanned, but his efforts to obtain proper clerical force have been unavailing. There was but one civilian clerk for the important duties of the disbursing and property officer prior to the beginning of hostilities, and it was necessary for the labors of this clerk to be supplemented by details of sergeants of the Signal Corps, a most objectionable line of action, but which was absolutely necessary.

The resignation, for the purpose of military service, of two clerks of the office left the disbursing officer without any skilled clerk, and the labors of his office, at all times arduous, became almost impossible. In order to handle the largely increased amount of work connected with the purchasing and forwarding of signal supplies to commands in the field, it was necessary from time to time to increase the clerical force by three temporary clerks, a number inadequate to do the work, which has consequently fallen in arrears for the first time in the history of the office. While most of the clerks appointed were willing, yet they were unfamiliar with the duties required of them, and frequent changes have proved injurious to the public interest. The necessity of a proper permanent force for the discharge of public business is obvious, and Congress should also provide a suitable clerical force for the general depot of signal supplies, for which the proper number of clerks and laborers will be asked for in the estimate for the coming year. It should be pointed out that the work of the disbursing officer, as indeed of the Chief Signal Officer and his other assistants, has been done under conditions which, to use plain English, have been discreditable to the Government. Despite repeated applications there has been no increase

in the number of rooms. Not only has the Chief Signal Officer been unable during the whole war to transact any strictly confidential business in his office, owing to the necessary presence of another officer and clerks therein, but also, in addition, the other officers and clerks of the office have been crowded into three rooms, lighted by one widow each, where it has been impossible to transact public business for a portion of each day save by artificial light. For many consecutive days the temperature was 100 degrees in these crowded rooms, the unsanitary conditions of which were such as to affect injuriously the physical health of the clerks and to impair their mental efforts. Despite these unsanitary conditions and the attendant great physical discomforts the clerks as a rule have most faithfully performed their exacting duties. The hours of labor in the Signal Office during the war ran from nine to ten hours daily, Sundays included, and at times reached twelve hours per day. It should be said to the credit of these clerks that no expression of dissatisfaction has ever reached the ears of the Chief Signal Officer, and they have shown almost invariably a patriotic devotion to duty that is worthy of the highest praise.

The parsimonious policy that reduced the appropriation of the Signal Corps from \$22,000 to \$18,000 a few years ago necessarily left the Signal Corps badly provided for war operations. It was necessary to provide a large army with all the appliances for the most advanced methods of electrical and visual signaling, as well as provide for the electrical installation of the fire-control system of all the artillery forts of the country. As far as possible articles were bought on short-time bids of from three to five days, but whenever a necessity arose the Chief Signal Officer went into open market and purchased without the formality of bids. This course, it should be said, has only been followed when time was a more important factor than money.

While it is not usual to note in an annual report the relations of the different bureaus of the War Department, yet, under the circumstances, considering the importance of the relations of the Chief Signal Officer to the Adjutant-General and the Quartermaster-General, it is but justice to record the harmony that has existed with and the valuable cooperation that has been received from these departments. To the Adjutant-General of the Army, Brig. Gen. Henry O. Corbin, is especially due an acknowledgment of valuable services rendered by him, which have contributed to the successful operations of the Signal Corps. Whether day or night, General Corbin never failed to fully and promptly meet the most exacting demands of the Chief Signal Officer of the Army when made in the public interests.

Brig. Gen. Marshall I. Ludington, the Quartermaster-General of the Army, has never failed to promptly and favorably act whenever special facilities have been needed by the Signal Corps. It should be further added that Brig. Gen. John M. Wilson, Chief of Engineers, has also extended valuable aid, both personally and through the officers of the Corps of Engineers, especially in connection with Signal Corps cables in the great harbors.

Thanks are due to Maj. Hugh G. Brown, United States Infantry, temporarily on duty with the corps, for the valuable assistance rendered, especially in connection with matters pertaining to field work.

The services of Capt. Otto A. Nesmith, United States Volunteer Signal Corps, Principal Assistant, have been simply indispensable to the successful conduct of the office. His knowledge of War Department methods, his tact, courtesy, and industry were most valuable adjuncts at such critical times.

Maj. Eugene O. Fechét, United States Volunteer Signal Corps, brought to his duties as disbursing officer of the Signal Corps a knowledge of practical business methods which were doubly important through his appreciation of the importance of time and accomplishment of the desired end in the most direct and efficient manner.

Capt. Daniel J. Carr, United States Volunteer Signal Corps, was most valuable from his technical knowledge of electrical matters at a time of large purchases and new installations.

The chief clerk, Mr. George A. Warren, has performed his duties with the zeal, industry, and intelligence that have marked his services for many years, and it is hoped that the reorganization of the office will permit him to receive a salary commensurate with his ability and application.

APPROPRIATIONS.

The Signal Corps commenced its war operations with a fund of \$800, which was supplemented by allotments from the national war defense fund and by deficiency appropriations of Congress, so that the total amount available for the eighteen months ending December 31, 1898, aggregated \$609,000. The report of the disbursing officer shows the chief items of war expenditures, of which the most important in connection therewith are the cable, telegraph, and telephone lines and instruments, aggregating, in round numbers, a quarter of a million dollars.

ESTIMATES.

The estimates for the fiscal year ending June 30, 1900, aggregate \$47,500, and are based upon the assumption that the Regular Army will hereafter consist of 75,000 men. Should the number be greater or less the estimates can be proportionately increased or decreased.

REGULAR SIGNAL CORPS.

The reorganization and enlargement of the Signal Corps of the Army is a matter of great importance, and the within recommendations are based on the supposition that the Regular Army will hereafter consist of a force of 75,000 men and that the outlying portions of the United States—Porto Rico, Hawaii, and at least the city of Manila—will be garrisoned.

The regular corps now consists of 10 officers, 10 first-class sergeants, and 40 sergeants. It is recommended that there be added to the Signal Corps 1 colonel, 1 lieutenant-colonel, 2 majors (one to be a disbursing officer out of the line of promotion), 5 captains, 9 first lieutenants, 40 first-class sergeants, 60 sergeants, 50 corporals, 250 first-class privates, and 50 second-class privates.

This makes an increase of 18 officers and 450 enlisted men; but, on the other hand, it relieves from military signaling duty, and thus enables them to devote the time to other duties, 1 officer and 4 enlisted men from each company throughout the Army, or an aggregate of about 400 officers and 1,600 men—a most cumbersome and inefficient system, which absolutely broke down during this war, as it has during all Indian campaigns and troubles in past years.

It is further recommended that the vacancies shall be filled from officers who have served in the United States Volunteer Signal Corps during the present war; and that no officer shall be appointed until he shall have been previously approved as to his moral, mental, and physical fitness by a board of Signal Corps officers convened for that purpose and its proceedings are approved by the Secretary of War.

The efficiency of the Signal Corps in the war has been due to the high professional standing of the officers of the regular corps, who, all, without exception, attained their commissions by competitive examination after having served in the Regular Army. The high standard of the corps in future can only be preserved by a similar policy, which should insure in any future war, as it has in this, the successful operation of the corps. In the present war the captains and lieutenants were promoted to the higher grades in the United States Volunteer Signal Corps, while 14 of the trained first-class sergeants, proficient in their duties and experts through long service, were made second lieutenants. This afforded a most satisfactory frame work with a personnel skilled theoretically and practically both at the top and at the bottom of the commissioned force. It may be added that a very large number of noncommissioned officers is necessary in this corps, owing to the fact that the electrical installations at artillery posts will demand some skilled electricians for the care of the electrical devices which are absolutely indispensable to the system of fire control, on which rests the efficiency of the entire coast defenses of the country.

THE LIBRARY OF THE ARMY AND THE WAR DEPARTMENT.

This collection of books has usually been called the War Department library, yet in truth it belongs almost entirely to the Army of the United States, the books having been purchased from its contingent fund. Under these conditions it has been administered in the interest of the Army at large, while at the same time serving the office of the Secretary of War and all the bureaus of the War Department as a library of reference and issue. The library has been under the general supervision of the Chief Signal Officer of the Army in addition to his other duties, and in connection therewith he has paid particular attention to the selection of suitable professional publications and their proper cataloguing for the use of the Army. Under this policy the library is gradually attaining a rank as one of the best collections of military literature in the world, despite the fact that less than \$1,000 annually is spent on it.

Exclusive of the public documents and Government publications there were added to the library during the year 1,190 books and pamphlets and about 800 periodicals. Of the books, 457 were acquired by purchase and 313 by exchange and 420 by gift. Those purchased either for professional research or reference, include publications on war and allied sciences. Special attention is given to the collection of historical works on American wars, and the books contributed as gifts are largely those relating thereto. Special consideration is also given to works bearing on the resources and political conditions of countries which are engaged in warfare, or where such contests are anticipated, so that officers of our Army may intelligently follow current military operations.

The library has been very successful in exchanges, as authorized by the law of January 12, 1895. In exchange for military publications the War Department this library has received during the past year less than 34 separate military periodicals from foreign countries.

Particular efforts have been made to obtain books and pamphlets relating to American wars, especially the war for the Union. Many pamphlets and books have been donated to the library in answer to widely distributed circulars. The gradually the deficiencies in important military serials are being filled by purchase or exchange.

The regulations extending the use of the library to officers of the Army on duty at distant posts have had gratifying results. No book has been lost and none materially damaged. The professional value of this privilege to officers is indicated by the fact that, despite war conditions, no less than 483 books were loaned by registered mail during the fiscal year. The professional activity of the officers is evidenced by the character of the publications borrowed, which largely pertain to the higher branches of scientific and military literature.

No account was kept of the number of books consulted in the library until December, 1897, but as the number consulted during the last six months of the year was 4,859, it is probable that not far from 10,000 volumes were consulted during the year.

The number of volumes loaned to officers and men of the Army and clerks of the War Department in the city of Washington was about 3,600. This makes the total library use some 14,000.

In accordance with law, the use of the library has been extended by the Secretary of War, under proper restrictions, to the faculty and students of the Columbian University. Historical students in steadily increasing numbers visit this library for study and research, and to them are accorded the amplest facilities permitted by the limited space.

The library force should be placed on a permanent and satisfactory footing. While the library has increased 40 per cent by the devolving on the library the distribution of public documents, the library force has only one regular clerk. No less than 20 employees have been assigned to the office during the year. While these clerks have, almost without exception, been faithful, yet their lack of library knowledge was such that in most cases they have been actually a drawback in the work in hand. The library force should consist of the librarian, who should be a fourth-class clerk, and two assistants, who should be attached to the Secretary's office and be an actual part of the library force.

The death of the former librarian, Mr. David Fitzgerald, a clerk at \$1,400, was followed by the appointment of Mr. J. W. Cheney, who, despite the increased labor that fell upon the office in reorganizing it, receives a salary of only \$1,200. The library has never been arranged or catalogued under modern scientific methods, and its utility has been greatly impaired by the lack of proper and systematic arrangement. Since the beginning of the new administration in December last, nearly two-thirds of the library has been rearranged under the general features of the Cutter system of classification, modified as the peculiar character of this library necessitated.

Especial attention has been given to the cataloguing, filing, and arranging of the very valuable photographs and photographic negatives relating to the war for the Union. There are now over 8,000 such photographs on file in the War Department Library. These valuable collections have been placed beyond the chance of future injury, and are so arranged that any single photograph can be at once reproduced. The process of identification has of necessity been slow, and there are yet several hundred portraits of distinguished soldiers and civilians in the unrecognized list. A finding list of the photographs and photographic negatives has been printed, thus widely extending the value and knowledge of these collections. In exceptional cases, where such action would be in the public interests, or as a proper concession to surviving relatives, permission is granted, in accordance with the instructions of the Secretary of War, for reproductions of selected photographs under rigid restrictions insuring the safety of the negatives.

WAR DEPARTMENT DOCUMENTS.

The distribution of such documents as are published by the War Department, printed only in small editions for the use of the Army, has been regularly and systematically conducted.

The creation of a large army made it necessary to modify the restrictive law regarding the military publications of the War Department. The Chief Signal Officer therefore recommended to the Secretary of War that legislative authority should be obtained for the future printing of as many extra copies of the military publications of the War Department as might be necessary for the instruction of the National Guard of the various States. In addition, Congress provided, on the recommendation of the Chief Signal Officer, for the printing and distribution of 35,300 volumes of various manuals, regulations, and drill publications, which were issued under conditions imposed by public resolution No. 24 (Appendix No. 13). There have been received more than 120,000 and been distributed more than 60,000 War Department documents during the year. This work, carried on in obedience to the special provisions of law, is of such importance in character as to demand the assignment to it of a permanent clerk. Legislation by Congress is necessary, and should be obtained, whereby the National Guard can obtain at their own expense the military publications of the War Department, which can now neither be issued nor sold except by special Congressional authority.

A. W. GREELY,

Brigadier-General, Chief Signal Officer of the Army.

The Honorable

The SECRETARY OF WAR.

LIST OF APPENDICES.

	Page.
1. Report of Lieut. Col. Richard E. Thompson, United States Volunteer Signal Corps, on the operations of the corps against Manila, Philippine Islands.	908
2. Report of Col. H. H. C. Dunwoody, Signal Corps, United States Army, on the organization of the United States Volunteer Signal Corps	919
3. Report of Col. James Allen, United States Volunteer Signal Corps, chief signal officer Army of Porto Rico, on the operations of the Signal Corps on the south coast of Porto Rico, with supplemental report by Lieut. Col. Samuel Reber, United States Volunteer Signal Corps.	916
4. Report of Lieut. Col. Frank Greene, United States Volunteer Signal Corps, chief signal officer Fifth Army Corps, on the operations of the Signal Corps at Santiago de Cuba, with supplemental report by Maj. G. W. S. Stevens, United States Volunteer Signal Corps.	953
5. Report of Lieut. Col. Joseph E. Maxfield, United States Volunteer Signal Corps, on war ballooning at Santiago de Cuba.	960
6. Report of Second Lieut. Grant Squires, United States Volunteer Signal Corps, on telegraphic censorship exercised by the Signal Corps.	966
7. Data relative to permanent military telegraph lines.	968
8. Report on electrical installations at Camps Alger, Cuba Libre, and Savannah, George H. Thomas, Hamilton, Poland, Meade, and Wikoff	971
9. Order No. 13, Chief Signal Officer of the Army, reviewing the services of the Regular and Volunteer Signal Corps	983
10. Report of Maj. Eugene O. Fehét, United States Volunteer Signal Corps, disbursing officer, Signal Corps.	985
11. Report of Capt. Otto A. Nesmith, United States Volunteer Signal Corps, assistant to the Chief Signal Officer, on general clerical work at the Signal Office	987
12. Report of Lieut. Col. George O. Squier and Prof. Albert C. Crehore, on experiments and discoveries in sine-wave telegraphy	988
13. Joint resolution authorizing the printing of extra copies of military publications of the War Department	991

APPENDIX No. 1.

REPORT OF LIEUT. COL. RICHARD E. THOMPSON, UNITED STATES VOLUNTEER SIGNAL CORPS, ON THE OPERATIONS OF THE CORPS AGAINST MANILA, PHILIPPINE ISLANDS.

HEADQUARTERS DEPARTMENT OF THE PACIFIC AND EIGHTH ARMY CORPS,
OFFICE CHIEF SIGNAL OFFICER,
Manila, Philippine Islands, August 29, 1898.

CHIEF SIGNAL OFFICER,
United States Army, Washington, D. C.

SIR: I have the honor to report as follows relative to the work of signal parties during recent operations:

The day immediately following the arrival of the signal command in Manila Bay, July 31, it was disembarked and assigned to quarters at Cavite, and preparations were at once made for the connection of this point, then the base of supplies, with the advanced camp of troops before Manila. Although by direct route from Cavite to the camp did not exceed 8 miles, the distance around by land was at least twice as great, and through a country difficult at all times, but rendered nearly impassable during the heavy rains then prevalent and the great heat.

There was utter lack of the ordinary army transportation, so that the only recourse in this respect was to the small ponies and native carts of the country; but, notwithstanding the difficulties of road and the lack of facilities, the base was placed in communication with Bakor, the insurgent headquarters; Paranaque, the secondary base; the camp, and the trenches in less than four days—no great feat, apparently, to those not familiar with the difficulties to be overcome, but one, under the circumstances, calculated to tax the endurance and perseverance of the men to the utmost, and bring into marked prominence their indifference to hardship and privation and their devotion to duty, and indicating in the most unmistakable manner the capacity of their officers to command.

During the period of line construction communication between the several transports was maintained by flag detachments, and after completion of the telegraph reports were transmitted through the elevated flag station at Cavite from the most advanced position of the line to both the transport fleet and the navy; and from the time of its completion to the day of the assault the telegraph and flag system was of the utmost importance in informing the different commanders of the condition of their troops and supplies, the progress of affairs at the front, and the character of the almost nightly engagements at the trenches, during one of which the hazardous work performed by Corporal Dozier and Private Greene, in repairing the field telegraph line under a hot fire, was of such a character as to call forth the special commendation of the brigade commander.

On the night of August 12, orders having been issued for the disposition of troops and the assault the next day, five signal details, each under the command of an officer, were made—one each to the division commander, the two brigade commanders, and the reserve; and an important station was established on the beach, with instructions not only to maintain communications of the army, but to facilitate the cooperation of the navy, by the display of prearranged signals for the control of their fire, not only during the bombardment of the fort and the enemy's line of trenches, but for directing its fire in front of the army during its advance; and the effective work of the *Callao* in running close in and maintaining a rapid fire against the Spanish position during the progress of the assault, not only marks the intrepidity of her commander, but indicates the satisfactory working of the system of signals.

The efficiency of the signal parties can perhaps be best illustrated by stating that during the engagement the different parts of the army were at all times in actual cooperation until the carriage of the works and the entrance of the troops into the city, touch being temporarily lost only while carrying forward the line and establishing stations under fire. The party designated to signal the navy maintained its position, either with or in advance of the firing line, and its signal flags were the first emblems of the United States to be displayed within the enemy's works.

It is most gratifying to be able to record that during all the operations, both preceding and during the assault, each individual of the signal detachment, officer and man, performed his duty in every respect with most scrupulous and zealous devotion.

Very respectfully, your obedient servant,

R. E. THOMPSON,
Chief Signal Officer and Lieutenant-Colonel Volunteers.

INCLOSURE 1.

REPORT OF CAPT. E. A. McKENNA, COMMANDING FIRST COMPANY, VOLUNTEER SIGNAL CORPS.

MANILA, PHILIPPINE ISLANDS, August 17, 1898.

Maj. R. E. THOMPSON,
*Volunteer Signal Corps, Chief Signal Officer,
 Department of Pacific and Eighth Army Corps, Manila, Philippine Islands.*

SIR: I have the honor to submit the following report of the battle at Manila, August 13, 1898:

On that morning my company consisted of 55 men, and was distributed as follows:

At Cavite: Sergeants Knapp and Mowbray, Corporals Vose and Schoeneman, and Privates Banning, Biebel, Ryan, Scheuer, Reeves.

At Baker: Sergeant Sloan and Corporals Stock and Lindholm.

At Paranaque: Sergeant Neal and Privates Holloway and Williams.

At Camp Dewey: Sergeant McKinstry, Corporals Smith and Bietau, and Privates Reed and Neal.

On board S. S. *Newport*: Corporal Jones and Privates Daley and Stewart.

In Second Brigade Hospital: Corporal Emerson.

At the front, with Lieutenant Rudd: Sergeant Watkins and Privates Ten Eyck, Logan, and Ray. With Lieutenant Kilbourne: Privates Fowle, Curtis, Dunn, Walters. With Lieutenant Perkins: Sergeant Cunningham and Privates Burgess, Gorsuch, Greene, Mize, Rudrew, and Russell. With Lieutenant Chance: Sergeant Dozier, Corporal Gordon, and Privates Forman, Gellerman, Inman, Hopkins, and Cutler.

My detail consisted of Sergeants Gibbs, Kelly, Sellar, and Jurs, Corporal Howser, and Privates Cooke, Wadak, Shalda, and Frazier.

The officers, with the various details as above, left Camp Dewey at 6 a. m. Lieutenant Chance and detail were sent to establish an office at General MacArthur's headquarters, he being assigned as chief signal officer First Brigade, Second Division of the Eighth Army Corps.

Lieutenant Perkins and detail were assigned to take charge of office established at Church, he being chief signal officer Second Brigade, Second Division, Eighth Army Corps.

Lieutenant Kilbourne and detail went to Passay with myself and opened an office. Lieutenant Kilbourne being assigned as chief signal officer of reserve.

After opening an office at General Anderson's headquarters at main reserve, Lieutenant Rudd and detail were left in charge of said office.

Myself and detail went to the beach on the extreme left of our intrenchments and established a signal office in rear of hulk.

All of the above offices were working "O. K." at 7.30 a. m.

At 9.30 the fleet began the bombardment of the Spanish fortifications, the Signal Corps with their flags indicating the exact spot where each shot took effect; and directing the flagship whether their shots were too high or too low.

At 10.10 a. m. my detachment signaled the fleet to cease firing, and immediately thereafter the advance of the Second Brigade, commanded by General Greene, was begun.

Sergeants Gibbs and Jurs carried Signal Corps flags on the left flank of the Second Brigade, which was directly exposed to the fire of the enemy, and Privates Frazier and Wadak supported them.

The Spanish intrenchments were gained by our troops of the Second Brigade at 10.35 a. m. At 10.50 a. m. telegraph communication was made inside the Spanish intrenchments with our troops, the wire having been strung from previous station by Sergeants Kelly and Sellar and Corporal Howser, and Privates Burgess and Cutler, from Lieutenant Perkins's detail. At the same time First-Class Sergeant Chawick, of the Signal Corps, United States Army, assisted in the work. Wire was then strung some half a mile farther, and an office opened in an English house in the outskirts of Malate.

Wire was interrupted for a short time on account of troops passing over it and breaking connection. Everything, however, was in first-class working order at 3 p. m.

Lieutenant Rudd and his detachment were ordered to report to me at Malate, there being no further occasion for office at the main reserve.

Lieutenant Kilbourne, with his detachment, was ordered to close office at Passay and report to me at Malate.

Lieutenant Rudd reported to me at 4.30 p. m. and Lieutenant Kilbourne at 4.45 p. m. Lieutenant Chance and detachment were ordered to return to Camp Dewey. The telegraph office, with Lieutenant Kilbourne in charge, remained at Malate, and my detachment, also Lieutenant Rudd's, came toward the city of Manila and established an office at General Anderson's headquarters.

When General Greene's troops entered the intrenchments I notified General MacArthur, on the right wing, that the Second Brigade had gained the enemy's intrenchments, and that the Spaniards had apparently abandoned the same upon the commencement of the bombardment by the fleet.

I wish to commend the bravery of all the men in my detachment, and especially the good services rendered by Sergeants Gibbs, Kelly, Jurn, and Sellar, and Corporal Howser. I also wish to call attention to reports of Lieutenants Chance, Perkins, Kilbourne, and Rudd, which are hereto attached and made a part of this report.

When connection was first made inside the Spanish intrenchments at 10.50 a. m. the men of my detachment and also First-Class Sergeant Chadwick were subjected to the fire of the Spanish soldiers, but, fortunately, none were hit with the enemy's bullets.

While the office was being established in the English house heretofore mentioned, and while two of my men were busily engaged running the wire through the window, a fusillade of shots was fired through the window, my men narrowly escaping serious injury. A private of the Colorado regiment was seriously wounded in the neck within a very few feet of where my men were at work.

Every man of the First Company of the Signal Corps was anxious to be the first man to cross the Spanish intrenchments, and all, without exception, did their duty in the positions assigned to them.

A red and a white flag of the Signal Corps were the first American emblems shown within the Spanish intrenchments, being there some minutes before the Spanish flag was pulled down and the American flag run up in its place. Established a telegraph office at General Anderson's headquarters, near walled city, at 4.45 p. m., putting him in telegraphic communication with all the troops of Second Division, Eighth Army Corps.

Hereto I append report of trip from San Francisco to Manila.

In pursuance of orders issued by Major-General Otis, dated Camp Merritt, June 25, the First Company of Volunteer Signal Corps, consisting of 5 officers and 55 men, left Camp Merritt June 26, 1898, at 11 a. m., and marched to Pier No. 7, San Francisco Dock, arriving there at 12.15 p. m., going on board the steamship *Indiana* en route to Manila.

Two men of the Signal Corps, viz, Dozier and Howser, were detailed for duty on the *Morgan City*, Privates Dunn and Frazier were detailed for duty on the *Ohio*, Privates Jones and Daley on the *City of Para*, and Privates Gordon and Cutler on the steamer *Valencia*, which steamers, with the *Indiana*, formed the third expedition to the Philippines, commanded by Brigadier-General MacArthur.

The expedition steamed out of harbor at San Francisco June 27. On the way out of harbor, signals were exchanged between Signal Corps men on steamship *Indiana* and flag stations along the entrance to the harbor.

June 28: Sea very rough. Early in the morning messages were sent from the *Indiana* by Privates Jurs, Stock, and Knapp to other vessels of the fleet, the sending flagmen having to be lashed to the bridge on account of rough sea.

On trip from San Francisco to Honolulu there were no incidents of any importance.

Monday, July 4: All drills were suspended and exercises in commemoration of our national birthday were held on the cabin deck, consisting of music by the band, oration by Major Lord, music and chorus. General MacArthur acted as president of the day.

Sighted Hawaiian Islands at 3.30 a. m. July 6. Made Honolulu Harbor at 6 a. m. *Ohio* and *City of Para* already in port; *Morgan City* arrived at noon.

All men of the Signal Corps were allowed to go on shore July 6 and 7. *Valencia* arrived at midnight July 6.

On July 7 the First Company of Signal Corps was landed in a body from the *Indiana* and marched to the palace grounds, where they were served an elegant luncheon by the citizens of Honolulu, the officers being entertained by the officers of the Hawaiian National Guard at their bungalow.

The *Indiana*, *Valencia*, *Morgan City*, *City of Para*, and *Ohio* left Honolulu Harbor Friday morning, but on account of machinery of *Indiana* being out of order the fleet returned to the entrance of the port.

During stay in port at Honolulu the Signal Corps was engaged in sending messages between the various ships by flag. The fleet finally sailed from Honolulu at 2.30 p. m. July 9.

The weather from San Francisco to Honolulu was not excessively warm, but after leaving Honolulu it began to get unbearable.

Up to July 20 no incident of importance occurred, except the death of a private of the Twenty-third Infantry on July 14.

Private Ralph R. Bowers, of the Signal Corps, died at 7.35 p. m. on July 20. He was first taken sick on July 17, complaining of indigestion. From best information obtainable it appears that he overloaded his stomach with canned goods, and a short time

after he went down into the engine room, where the thermometer was about 120°, and immediately after coming out of the engine room took a shower bath. He was sent to the hospital on the 17th. On the morning of the 20th he seemed to be much better, having passed a quiet night. At 7 o'clock p. m. on July 20 Captain McKenna, Sergeants Gibbs, and Corporal Smith went to see him, there being no appreciable change in his condition; but a few minutes later it was noticed that death was imminent. He passed away quietly, with scarcely a struggle. The doctors pronounced the cause of death to be heat exhaustion and heart failure. A list of the effects of Private Bowers was made by the captain, and witnessed by Lieutenants Chance and Perkins. Thursday, July 21, the remains were consigned to the sea at 10 o'clock a. m., from port side of the ship, in longitude 155° 46' east, latitude 20° 48' north. The service of the Episcopal Church was read, and six pallbearers and the whole company were present at the ceremony, including the company officers; also General MacArthur and Colonel Owenshine, of the Twenty-third Infantry. The band of the Twenty-third Infantry played a funeral march and "Nearer, my God, to Thee." Taps were sounded.

Up to this date a morning drill of one hour and an afternoon drill of one hour in wand practice were had on board ship, also inspection of arms at 3 o'clock p. m., but subsequent to this date the weather was so warm that these drills and inspections were dispensed with.

Lieutenant Kerr, of the Engineer Corps, died at 9.30 p. m. on the 21st, and was buried Friday, July 22, at 9.30 a. m., from the port side of the ship.

Corporal Vose was quite ill July 22 with neuralgia.

We passed the Ladrone Islands Friday evening, July 22.

July 25 and 26 I served with general court-martial on board *Indiana*.

The fleet arrived at Cavite at 4 p. m., July 31, and cast anchor. The harbor was sighted at 9 a. m., but several hours' delay was occasioned waiting for the *Morgan City* and *Valencia*.

On the voyage the quarters of the men were as good as could be expected owing to the crowded condition on board. The health of the men was fairly good as an average. More fresh vegetables would have been conducive to good health, but it was impossible to bring such articles of food such a long distance. With one exception no serious illness prevailed.

Distance traveled from San Francisco to Manila, 6,995 nautical miles.

Hereto attached are reports of Lieutenants Chance, Perkins, Kilbourne, and Rudd, covering their detached duties during campaign ending in the capture of Manila.

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

A true copy.

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

REPORT OF LIEUT. WILLIAM W. CHANCE, FIRST LIEUTENANT, VOLUNTEER SIGNAL CORPS.

AUGUST 13, 1898.

I was assigned for duty as chief signal officer of First Brigade, Second Division, Eighth Army Corps, at the headquarters of General MacArthur, on the extreme right of the attacking line, with the following men: Sergeant Dozier, Corporal Gordon, Privates Hopkins, Gellerman, Forman, Cutler, and Inman. Corporal Gordon had been detailed to set up instrument at this station on the evening of the 12th.

Left Camp Dewey at 6 a. m., following the main telegraph line for about 1 mile, to the headquarters of General Anderson; then proceeded to our station in the trenches on the right, between the Astor and Utah batteries, arriving at 7.30, and reporting to General MacArthur, who had reached there shortly before. Wire working well. Wire open at 7.50. Sent out Dozier and Hopkins, who found wire grounded; cleared it, and reported back at 8.05.

At 11.30 sent Sergeant Dozier to the front with message for General MacArthur. At 12 sent Hopkins to the front with message for General MacArthur, distance about 1½ miles. Cutler accompanied him about half way to relay reply if any. At 2.20 p. m. I delivered message to General MacArthur, who, I found, had raised flag in Paco and was entering Malate.

At 3.10 moved telegraph instrument to second floor for protection from rain.

At 6.55 received orders from you to return to Camp Dewey with instrument and extra supplies, which orders were carried out.

During the engagement the men under my command worked diligently and faithfully, rendering very efficient service.

The file of telegrams received and sent during the day shows: Messages sent, 31; received, 21; the greater portion of the work having been done between the hours of 8.30 a. m and 2.30 p. m.

REPORT OF LIEUT. WILLIAM W. CHANCE, VOLUNTEER SIGNAL CORPS.

DETACHED DUTY, August 3 to 21, 1898.

Was in command of detachment at Cavite, Philippine Islands, August 3. Purchased two horses, giving order on quartermaster for \$150, Mexican. At 1 p. m. detailed Privates Schoeneman and Fowle to cut our wire in at the insurgents' telegraph office, Cavite, to complete circuit over insurgents' wire from Cavite Arsenal to Bakor, or to point of Lieutenant Kilbourne's detachment. After cutting our wire in, Schoeneman went out the line 3 or 4 miles and returned with report that it was in good condition.

August 4, 5, 6, and 7: At 9 a. m., 4th, Sergeant Knapp and Private Reeves started on horseback to carry coppers to you (Captain McKenna). I purchased a horse, giving order on depot quartermaster for \$70, Mexican. Lieutenant Rudd, with Schoeneman and Fowle, started on horseback at 9.45 a. m. to clear line from Cavite until you and party were met. At 6.45 p. m., as the wire had not as yet begun working, I concluded that something was wrong between Cavite and Lieutenant Rudd's detachment; so, with Sergeants Jurs, Neal, and Mowbray, I started out to repair line. When at a point about 1½ miles from Cavite Arsenal, discovered a bad cross, the upper and lower wires being twisted together in such shape that it was necessary to cut out about 300 yards of the upper wire. After cutting the wire, tying up the ends, and putting in several pole supports, went on quarter of a mile and tested back to Cavite, finding wire clear. This work occupied four hours' time, owing to a heavy rain storm and nearly total darkness. From this point to Baleta, which is about 8 miles, found wire off many insulators, and quite a number of places where it was necessary to clear away overhanging limbs which interfered. In Baleta is a telegraph office operated by the insurgents, which it was believed interrupted the working of our instrument. We therefore proceeded a little beyond and made a test, but were unable to raise Cavite. It was evident that the trouble was in the insurgents' office. We returned, cut the office out, and made another test, which proved conclusively that this office was the cause of the break, as the line now worked clear through to our Cavite office. The above office was cut out at 4.20 a. m., the 5th. About one-half mile before reaching Bakor found that new wire had been strung from other direction, and I recognized our insulators. At this point I was unable to raise either Cavite or Bakor, but, owing to the fact that a new wire had been strung, I concluded that the programme had been changed; hence I pushed on to Bakor, arriving there at 8.45 a. m., to meet you, and received orders to take your squad and string wire back to Cavite as soon as possible. Strung insulated wire down to and across Bakor River and about 2 miles beyond; then took up iron wire as far as Cavite Viejo. Here you caught up to us and gave further orders regarding the line; then went back to Bakor. Leaving Cavite Viejo in two squads, work was divided up. Squad under Sergeant Knapp wired up to within a short distance of Baleta, connecting the wire put up by my squad, my men having gone on through and beyond the village about three-quarters of a mile. It then being 8.30 p. m. and too dark to continue work, I took the men back to Baleta, where we stayed all night, rising next morning, the 6th, at 4, and started ahead; divided as before, Sergeant Knapp, Corporal Sellar, and Private Burgess going to broken bridge and wiring from there along the beach; the other squad, Privates Hopkins, Schoeneman, Logan, Inman, and Reeves, continuing and connecting at broken bridge; then pushed forward, overtaking first squad at next native village. From here we pushed on into San Roque, where we ran short of wire. I went into Cavite (about a mile distant) for wire and found supply exhausted. Lieutenant Perkins secured boat, went to the *Morgan City*, and brought in enough to complete line. In the meantime Private Hopkins had come in with carromato, and reported that they had also run short of insulators. Loaded wire and insulators on carromato and returned to the line, taking Biebel and Wadak out to relieve Inman and Logan, who were exhausted. We picked up the wire and continued work until 8.30 p. m., when Private Schoeneman became suddenly ill. I then abandoned the job until next morning and took Schoeneman into the hospital.

At 5 a. m. of the 7th I took Sergeant Neal, Privates Fowle, Reeves, Scheuer, and Garsuch out, and in an hour's time completed the line so that communication was opened up from Cavite to Camp Dewey, over a line fully 28 miles long, including the line to the trenches.

The duties as assigned to and assumed voluntarily by the men were performed with the utmost alacrity and thoroughness, and it gives me pleasure to make special

mention of the fact, as the personnel of the men is above the average, and I consider it the least I can do by highly commending their actions.

On the 7th, at 8 a. m., as per your instructions, Corporal Sellar, Privates Burgess, Hopkins, Inman, and Logan, with the train of five carromatos, started back to Camp Dewey. During the remainder of the day, and also the 8th, I attended to my duties.

August 9, in accordance with your telegram, I left Cavite on launch at 4 p. m. and reported to you at Camp Dewey at 6.30 p. m.

WM. W. CHANCE,
First Lieutenant, United States Volunteer Signal Corps.

A true copy.

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

REPORT OF FIRST LIEUT. PHILIP J. PERKINS, VOLUNTEER SIGNAL CORPS.

AUGUST 13, 1898

Detachment arrived on station, designation H, and located in rear of small building at trenches, this being the headquarters of General Greene, at 7.15 o'clock a. m. This office had been previously operated, and was in charge of Sergeant Cunningham, who was detailed to remain with my detachment, the personnel of which was as follows: Sergeant Cunningham, Privates Mize, Burgess, Garsuch, Greene, Russell, and Russell.

Reported to Colonel Hawkins, Tenth Pennsylvania Regiment, in charge, as General Greene had not arrived. Later reported to General Greene.

This office was situated on wire No. 1, there being but two other offices connected up; therefore less business was transacted than would otherwise have been the case. However, upward of fifteen official messages were sent and as many more received during the engagement. Among those officers availing themselves of the use of wire were the following: Generals Anderson, Greene, Babcock; Captains Clark, Young; Lieutenants McCain, Gibbs, and others.

Detailed Cunningham and Greene as operators, Garsuch and Mize as linemen, and others as messengers, and am pleased to report that without exception the duties were promptly and cheerfully performed, although during the early part of the day a heavy rain storm was in progress.

Made notes of the following: First shot from war ship fired at 9.27 a. m.; first shot from light battery at intrenchments at 9.45 a. m. A few stray Mauser bullets overhead were the only indication of hostilities from the Spanish side, but no artillery fire from our intrenchments. General Greene soon vacated his headquarters, and soon thereafter, acting under orders, office was cut out and removed to beach. Later, orders to reestablish at old quarters without interrupting business were received. This was accomplished by making a loop, but, on account of scarcity of wire, established office in small native house on the breastwork some yards nearer beach than original office.

Private Wadak reported for duty with this detachment in the afternoon, and all were present at retreat.

Divided the time so that each man stood one and one-half hour watch during the night. On your request sent Garsuch and Burgess to assist with line.

Line in operation till about 9 o'clock, when break occurred. Sent out Sergeant Cunningham and Privates Russell, Garsuch, and Mize, who returned about 10 o'clock having found and repaired leak.

No provision had been made for commissary supplies, and the men began to feel the need of food; so about noon, after having failed to learn the disposition to be made of the office and men, I decided to send to Camp Dewey for supplies, detailing two men for this duty. Before their return word was received to take my detachment to Camp Dewey, leaving operator to attend to office. This was done, upon returning to take rations to men left at Station H. Reported at Camp Dewey, packed and help move effects to new station near Manila. Lieutenant Chance in charge at Camp Dewey. Reported to him, thereby concluding tour of duty with detachment assigned the previous day.

I again wish to express my satisfaction with the conduct of the men under circumstances which were trying and well calculated to test a man's nerve to the utmost, viz, performing the duties of messengers and operators during action in the field.

PHILIP J. PERKINS,
First Lieutenant, United States Volunteer Signal Corps.

A true copy.

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

REPORT OF FIRST LIEUT. CHARLES E. KILBOURNE, JR.

On June 9 I reported for duty in San Francisco, Cal., and was ordered to organize and drill the Volunteer Signal Corps men then at Camp Merritt. I proceeded at once to Camp Merritt, and on the following day issued orders for the government of the camp of the Signal Corps, with the hours for meals, roll calls, and drills. There were four hours' drill each day, and rapid progress was made in the signal drill, conducted by First-Class Sergt. Thomas B. Horne, Signal Corps, United States Army, and in the school of the soldier, which I conducted in person. In the latter I was greatly assisted by First-Class Sergeant Gibbs and Privates Knapp and Jurs. On June 25 you assumed command of the camp, continuing me as tactical officer under your direction.

From June 25 to August 3 I held no independent command. On the latter date, after a cargo loaded with stores and men had been landed at Paranaque, I was given a squad of 8 men—Sergeant Sloan, Corporals Kelly and McKinstry, and Privates Hopkins, Bietau, Gellerman, Cooke, and Lindholm—with orders to run a wire in the direction of Cavite, using the insurgents' poles, and making as rapid progress as possible. Loading three carromatos with telegraph materials, and having each man carry his carbine and ammunition belt, we attached the wire to the pole on the right bank of the Paranaque River and started. The men worked with a will under direction of Corporal Kelly, who, being a practical lineman, was given charge of the details, and we were soon beyond the limits of the city. The insurgents had two wires strung on the poles and we cut in on the lower one, appropriating about 3½ miles of it. Here their line branched off and we had to string our own wire again. After proceeding about a mile farther I decided not to return to Paranaque for food and blankets, as it would require about two hours, but to live on the country and use every hour of daylight for work. Leaving the men under command of Sergeant Sloan, I went ahead to the town of Bakor, found the insurgents' headquarters, and asked for General Aguinaldo. He was not in town, but I obtained from his adjutant, Lieut. Col. Lazaro Makapag, a room for my men and supper for the whole detachment, and from the local president permission to set up our instruments in their local telegraph office and to use their wires to communicate with Cavite, where an office of the Signal Corps had already been established. Returning to my squad, I ordered them to stop work for the night. Throughout the day heavy rain had fallen, drenching the men to the skin; the roads were abominable, and the work was frequently interrupted to lift the carts out of deep mud holes; but I heard no complaint from any of the men, though a long sea voyage had unfitted them for such heavy labor. Corporal Kelly took the lead in cheerfulness, and I can not praise his work too highly.

After supper I took Corporal Kelly and Private Hopkins to the telegraph office, and, connecting our instruments to their wires, endeavored to raise Cavite, but without success. We could hear the alphabet used on a Wheatstone instrument, and finding that there was such a station between us and Cavite, decided that that was the difficulty. The local authorities were angry at the cutting of their wire, but I refused to discuss the matter with anyone but General Aguinaldo, whom I had decided to visit on the following morning, hoping to obtain permission to use his whole line until our own had been run. This I had been instructed to do by Major Thompson.

On August 4 I aroused the men at daybreak, and, after a breakfast of biscuits and coffee, furnished by insurgents, we started work again, using insulated wire where houses or trees would cause heavy grounds. This I did to save the time necessary for trimming trees. Leaving the men under command of Sergeant Sloan, with instructions to push ahead as rapidly as possible, I drove to Baleta, 4 miles away, where General Aguinaldo had established his headquarters. He was sick in bed, and refused to see anyone, but from his second in command I obtained a general permit to use any office in the country, setting up our own instruments and using their wires to send our messages, provided that we would reattach them to their own instruments when through. This, he said, was the limit of his authority. He protested at the cutting of their wire, and asked that it be not done again. I told him it should not be unless necessity compelled it. Being unable to gain any greater concession, and ascertaining that there was no office between Baleta and Cavite, I returned to Bakor. There I met you (Captain McKenna) with Private Mize. You gave me a message from General Greene to General Merritt, and directed me to have it flagged to the *Newport*. I took Private Mize to the shore, and for two hours tried, without success, to flag the ship. I then hired a native boat, and started to the *Newport*, but about half a mile from shore the boat began to take in water heavily, and the natives refused to proceed. They ran in for the shore, and, on grounding, deserted the boat, leaving me in a rice swamp 2 miles from Bakor. I returned to that place and tried again, without success, to raise the *Newport* with the flag. Major Hale, the general's aide, came to the beach about 4 o'clock, and I

delivered the message to him as he was going over in a launch. I then rejoined my party, which had run the line through Bakor, making about 2½ miles over most difficult ground. I found that they were about to stop work, being utterly exhausted and under the impression that they would have the long march to Paranaque to make. Sending a native to make arrangements for the men to have supper and room in Bakor as on the preceding night, I put them back to work until sunset. The heavy rains had continued, and the exhausting work, with but little food, had tired the men out; but they worked willingly, taking turns climbing poles and carrying wire, the carromatos being too small to hold the wire reel.

At dusk Lieutenant Rudd rode in from Cavite with Privates Fowle and Schoerman. Lieutenant Rudd stated that Major Thompson had ordered him to inform me that the line must be completed that night. As we were still about 9 miles from Cavite, there was only one way to do this, which was to take the insurgent line. This could not be done without cutting out the office at the insurgent headquarters in Baleta, and it was necessary to obtain Aguinaldo's consent to this; otherwise he would cut us out again on discovering what we had done. I directed my men to cut in on the insurgent line, and then dismissed them for the night, excepting Corporal Kelly, who accompanied Lieutenant Rudd and myself to Baleta to cut out that office if we obtained permission. General Aguinaldo was still in bed, but we insisted so strongly that he finally consented to see us. We explained our errand and the necessity for it, and pressed our point for over an hour, but without success. He would grant anything else; but, having a large army in the field, he said, it was necessary for him to have his line in order to supply them with food and ammunition.

Finding that he would not yield us our wish, even for a day or two, we returned to Bakor, connecting his line again to avoid unnecessary complications with him. We had communication by telegraph from Camps Greene and Dewey to Bakor, as there was a large cathedral at the latter place where an excellent flagging station could be established. I decided to establish a station there and go to the *Newport* the following morning and report to Major Thompson the impossibility of reaching Cavite at once, but that messages might be flagged by the ship to Bakor, and thence by telegraph sent to the front.

On August 5 I arose at daybreak, and leaving orders with Corporal Kelly to establish flag station on cathedral with two men and with the others to continue the line toward Cavite, Lieutenant Rudd and I went in a native boat to the *Newport* and reported to Major Thompson. After breakfast messages were sent from the ship to the camp and back again, by flag to Bakor, and telegraph from thence to camp, showing the practicability of the plan. Major Thompson decided to establish an office at Bakor, and returned to the place with Lieutenant Rudd and me. There we met you (Captain McKenna) and proceeded to headquarters of the insurgents, where Major Thompson insisted upon having a house for an office. One was assigned, but was unsatisfactory, and before another could be had the Major left.

Later I secured the Tribunal Municipal, a stone building, well situated, and established an office there. Corporal Kelley had gone ahead with part of my squad, and some other members of the company had reached Bakor from Cavite. These I decided to keep with me. My new detachment consisted of Sergeant Sloan, Corporal Emerson, and Privates Stock, Walters, Shalda, Lindholm, Ray, and Cooke. The afternoon was spent receiving messages from the front over the wire and flagging them to the *Newport*, and vice versa. An order was received to concentrate carromatos and beasts of burden at Bakor on the following day to transport stores to camp. In applying at the insurgent headquarters I had native runners sent out over the country to gather them in. At night an important dispatch came over from General Greene to General Merritt, with orders to deliver at once. Having no torch, I went to the *Newport* in a small boat, delivering the message about 10 p. m. On returning, I carried with me General Merritt's reply and some messages from Colonel McClure, chief paymaster. These were wired about midnight, and the answer received, but it was too late to get another boat, so I decided to flag them about daybreak. With Sergeant Sloan's assistance I made out the detail for flag and telegraph work. From this time, as long as I was in charge at Bakor, Sergeant Sloan was of great assistance to me, and I can not commend him too highly for his energetic and faithful work or for his sound judgment in cases of emergency.

August 6: From 5.30 to 6.30 a. m., efforts were made to raise the *Newport*, but without success, heavy rain obscuring the vision. I then delivered the messages in person by means of a native boat. There was a storm, and being offered a trip ashore in the launch which was to take the paymasters ashore, I dismissed the native boat, which ran into Cavite for shelter.

I was given a message from General Merritt to General Greene. After the launch had left the *Newport* they decided to land at Paranaque, but were unable to do so on account of low water, so landed in canoes at Camp Greene. I delivered the dispatch to General Greene and returned to Bakor on horseback. that place in time

to reach General Merritt and staff at the shore and take them to the office. The afternoon was spent in receiving messages and sending them. The field telephones were attached, and General Merritt held a consultation with General Greene. Corporal Emerson and Privates Shalda and Walters being sick with cramps, were treated by Dr. Keefer, who accompanied General Merritt. This night, communication was established with Cavite, and messages sent through.

August 7: Was ordered about 11 a. m. to abandon office at Bakor and establish station at Paranaque. Leaving the men to bring forward the stores with a party on the way from Cavite, Sergeant Sloan and I drove to Paranaque, rectifying crosses and grounds on the way. By reason of permit obtained from insurgent authorities we were enabled, by using the local telegraph office, to establish communication a few minutes after reaching Paranaque. I then secured a permanent office, appropriated table and chairs to fit it up, and moved the instrument to that room. About that time you (Captain McKenna) reached Paranaque and took charge. Later, an order came from Major Thompson to keep up the station at Bakor, and I was ordered to return and reestablish it. Taking with me Sergeant Sloan, and leaving orders for Privates Lindholm, Cooke, and Shalda to follow, I returned to Bakor, intercepting the wagons carrying stores from there, and taking out enough for immediate use. I also turned back Private Ray. Sergeant Sloan and I reached Bakor about 7.30 p. m. and found that the local president had reestablished himself in the building, and that his council was holding session. We informed them that we must have the office again, and they agreed to vacate, leaving their furniture there till the following day. By 8 p. m. the office was cut in again and all working well.

August 8: Office work at Bakor.

August 9: Office work at Bakor. Lieutenant Perkins of your company landed some supplies, which were forwarded to the front in carromatos. I recommended the exchange of two operators for a flagman, as the work of the office was not heavy enough for so large a force. Private Stock was sent me, and I sent Privates Ray and Cooke to the front.

August 10: Office work at Bakor. Toward evening I received orders to turn the station over to Sergeant Sloan, and report to Camp Dewey the following day.

August 11: Turned over the office to Sergeant Sloan and reported at Camp Dewey at 9 p. m.

August 12: Received orders to connect the extreme left of our intrenchments with the point which was to be General MacArthur's headquarters in the approaching battle. With a squad consisting of Corporal Howser and Privates Bietau, Curtis, and Mize, I did so, using about six coils of insulated wire, which was raised so as to be out of reach of advancing troops.

August 13: Was established at 7.30 in charge of a station at Passay, where General MacArthur's reserve was to be posted. Shortly after 8, I reported to Colonel Ovenshine, who was in command of the reserve, and delivered a message that we had intercepted at Passay, it being sent over the wire, addressed to him at Camp Dewey. My squad consisted of Privates Curtis, Dunne, Fowle, and Walters, and after stationing Curtis and Fowle at the key, I took Dunne and Curtis over the line we would have to repair, so as to familiarize them with it. We had six pieces of insulated wire about 20 feet long, bared at both ends for rapid repair work, and each man was issued some insulating tape. About 10.30, the wire grounded between Passay and the main reserves, and was repaired in ten minutes by Dunne and Walters. At 11.06 a. m. Colonel Ovenshine, with the larger part of the reserves, was ordered to the front. Within half an hour the remaining troops, under Colonel Truman, were ordered forward. The current became so weak about noon that I cut my instrument out, reconnecting it from time to time in case any orders should be sent me. At 2.43 p. m. I received orders to report to you on the beach at Malate, cutting out my station before leaving. Reported at Malate, and after doing some line work in the outskirts and going forward with dispatches for Lieutenant McCain, A. A. G., I was left in charge of the telegraph station established at Malate. Colonel Jones was there in command of the Idaho troops and Utah battery, and I reported to him as chief signal officer of the station. At 7.30 he received a message over the wire to bring his troops to General MacArthur's headquarters, and, except for the guard, the station was deserted.

August 14: In charge of station at Malate. Privates Fowle and Curtis repaired a heavy ground between our station and the intrenchments. We had no food. At 1 p. m. the station was ordered abandoned and an office established at General MacArthur's headquarters. This was done under your direction, and I reported to the Signal Corps headquarters.

CHARLES E. KILBOURNE, Jr.,
Second Lieutenant, Volunteer Signal Corps.

A true copy:

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

REPORT OF SECOND LIEUT. A. J. RUDD, VOLUNTEER SIGNAL CORPS.

AUGUST 13, 1898.

Left Camp Dewey at 6 a. m. with detachment of four men, Sergeant Watkins and Privates Ten Eyck, Logan, and Ray, and followed telegraph line to my station one-half mile to the rear of the intrenchments. Proceeded at once to cut in the two loops from main wires on roadway to a hut about 150 yards distant, where General Anderson had established his headquarters, being in command of Second Division, Eighth Army Corps; set up instruments and intrenched the front of the building toward the firing line. Privates Ten Eyck and Logan were stationed at the key, both of them copying each message as it came in.

During my station here I handled a total of 39 messages; sent 18; received 21. At 2.40 p. m. General Anderson abandoned his station here, and I received orders from you (Captain McKenna) to cut out instruments and with my detachment report to you at the beach, where I arrived at 3.30 p. m.

REPORT OF LIEUTENANT RUDD WHILE ON DETACHED DUTY.

Upon orders received from you August 2, 1898, I proceeded at 9.45 a. m. with detachment of ten men, named as follows: Sergeant Neal, Corporals Sellar and Kelly, Privates Wadak, Logan, Lindholm, Williams, Schoeneman, Stewart, and Burgess to construct telegraph line from the arsenal at Cavite to the insurgent telegraph office on the outskirts of Cavite, a distance of half a mile. On account of the bad weather, and unsuitable conditions for stringing the wire, it took us till noon to complete the work.

On August 4, under orders from Major Thompson, left Cavite with detachment of two men, Privates Fowle and Schoeneman, at 9.45 a. m., on horseback, with instructions to follow the insurgents' telegraph wire until I met Captain McKenna or Lieutenant Kilbourne, and to inform either that there must be communication established within the next twenty-four hours and to hurry the work; in the meantime, to make occasional tests of the wire on the way, which was done, but were unable to break Cavite at our first test, about 4 miles from there. When our key was closed we could distinctly hear "C" calling "MC," so concluded wire was all right and that Cavite was not adjusted for us. Made numerous other tests along the road, sometimes hearing "C" calling "MC" and other times hearing nothing, but could feel strong current of electricity.

We met Lieutenant Kilbourne at 5 p. m., 2 miles west of Bakor, with instructions to carry a new wire through to Cavite. I then delivered my message and was informed that General Aguinaldo had refused us the use of his wire, and was quite angry at our having interfered with his communications in our tests. It being impossible to run a wire through to Cavite by the next night, Lieutenant Kilbourne, myself, and Corporal Kelly therefore proceeded once more to General Aguinaldo's residence at Old Cavite to make one more effort to secure the use of his wire. After much parley we secured an interview, which lasted an hour, but were unable to persuade him to give us the use of his wire even for a day, as he claimed he must have it to communicate with his army at the front. From there we returned to Bakor and spent the night. The next morning, August 5, at 6.30 a. m., with Lieutenant Kilbourne, hired a native boat which took us to the *Newport*, where I made my report to Major Thompson, after which did some flag work with Bakor. At 10.30 a. m. I returned with General Merritt and Major Thompson to Bakor. Upon arriving there met you and received orders to proceed to Paranaque and instruct Sergeant Cunningham to cut out his instrument, if he had already cut it in; also to stay there over night, but before arriving there you overtook me and gave the necessary instructions.

On August 6 received orders from you to report at Cavite, and there await orders. Upon my arrival at Bakor, order was countermanded, and was instructed to join Lieutenant Chance, who was continuing construction of line to Cavite. I joined him at 4.30 p. m., about 4 miles from destination, and reported for duty.

A. J. RUDD,
Second Lieutenant, United States Volunteer Signal Corps.

A true copy:

E. A. MCKENNA,
Captain, Volunteer Signal Corps.

INCLOSURE 2.

HEADQUARTERS DEPARTMENT OF PACIFIC AND EIGHTH ARMY CORPS,
OFFICE CHIEF SIGNAL OFFICER,
Manila, Philippine Islands, August 14, 1898.

ADJUTANT-GENERAL,

Department of Pacific and Eighth Army Corps, Manila, Philippine Islands.

SIR: In accordance with instructions contained in your telegram of August 23, I have the honor to submit the following list of names of officers and men of the Regular and Volunteer Signal Corps who are entitled to special mention and reward for services in the campaign ending in the capture of Manila, with a brief recital of the services deserving particular notice.

For conspicuous gallantry during the assault on Manila, August 13, 1898: Capt. E. A. McKenna, Volunteer Signal Corps. This officer advanced up the beach with the firing line, his signal flags displayed that the fire of the navy should fall in advance of the army, and, after passing the enemy's fort, in which his flags were the first emblems of the United States to appear, he established an advanced telegraph station under fire of the enemy's second line, and maintained communication with both wings of the army till the enemy's positions were carried.

For distinguished and meritorious service during the campaign terminating in the capture of Manila: Lieut. William W. Chance, first lieutenant, Volunteer Signal Corps; Lieut. Philip J. Perkins, first lieutenant, Volunteer Signal Corps; Lieut. Chas. E. Kilbourne, second lieutenant, Volunteer Signal Corps; Lieut. Alson J. Rudd, second lieutenant, Volunteer Signal Corps. These officers, by their energy, indifference to privations and hardships, and devotion to duty, maintained communication between the several bases, the reserves, and the most advanced positions, and during the assault transmitted orders and gave information of the most vital character relative to operations of the army.

For bravery and distinguished conduct in taking photographic views of the engagement while under fire, during the assault on Manila, August 13, 1898: First Class Sergt. Harry W. Chadwick, Signal Corps, United States Army.

For specially meritorious and gallant service during the assault on Manila, August 13, 1898: First Class Sergt. George S. Gibbs, jr., Volunteer Signal Corps; Sergt. Henry F. Jurs, Volunteer Signal Corps; First Class Private Arthur H. Frazier, Volunteer Signal Corps; First Class Private Charles F. Wadak, Volunteer Signal Corps. These men advanced up the open beach with the firing line, displaying signal flags that the fire of the navy should fall in advance of the army, and, after passing the enemy's fort, in which their flags were the first emblems of the United States to appear, assisted in the establishment of an advance telegraph station under fire of the enemy's second line.

For gallant and meritorious conduct in repairing the field-telegraph line, under fire, while on outpost duty in front of Manila, August 5, 1898: First Class Sergt. Earnest Dozier, Volunteer Signal Corps.

For distinguished service in running the field telegraph up the open beach and establishing an advance station under fire of the enemy's second line, during the assault on Manila, August 13, 1898: First Class Sergt. Edward E. Kelly, Volunteer Signal Corps; Sergt. Mortimer W. Sellar, Volunteer Signal Corps; Corp. William W. Howser, Volunteer Signal Corps; First Class Private John W. Burgess, Volunteer Signal Corps; First Class Private Leonard L. Garsuch, Volunteer Signal Corps.

Very respectfully, your obedient servant,

R. E. THOMPSON,
Major, Volunteer Signal Corps, Chief Signal Officer.

A true copy:

E. A. MCKENNA,

Captain, Commanding First Company, Volunteer Signal Corps.

APPENDIX 2.

REPORT OF COL. H. H. C. DUNWOODY, SIGNAL CORPS, UNITED STATES ARMY, OF
THE ORGANIZATION OF THE UNITED STATES VOLUNTEER SIGNAL CORPS.WAR DEPARTMENT, SIGNAL OFFICE,
Washington, September 12, 1898.The CHIEF SIGNAL OFFICER,
United States Army.

SIR: I have the honor to submit the following report on the organization and equipment of the Volunteer Signal Corps, provided for by an act of Congress approved May 18, 1898, as follows:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President is hereby authorized to organize a volunteer signal corps for service during the existing war, which corps shall receive the same pay and allowances as are authorized by law for the Signal Corps of the Army.

"SEC. 2. The volunteer signal corps shall consist of one colonel, one lieutenant-colonel, one major as disbursing officer, and such other officers and men as may be required, not exceeding one major for each army corps, and two captains, two first lieutenants, two second lieutenants, five first-class sergeants, ten sergeants, ten corporals, and thirty first-class privates to each organized division of troops: *Provided*, That two-thirds of all officers below the rank of major and a like proportion of enlisted men shall be skilled electricians or telegraph operators."

In submitting report on the organization of the Volunteer Signal Corps, authorized by the above act, it will not be out of place to refer to that wise provision of the law which requires that two-thirds of the officers and enlisted men of the Volunteer Signal Corps shall be skilled electricians and telegraphists.

It should be noticed that this legislation was approved on the 18th day of May 1898, about one month after the declaration of war, and that pressing demands had already been received from the various camps of volunteers, at that time rapidly coming up, for services of signal officers and skilled operators, which the Regular Signal Corps was not prepared to supply.

It was therefore necessary that this corps be organized, equipped, and placed in the field at the earliest moment, and no time could be spared for the slow process of examining into the efficiency of candidates for either appointment or enlistment in the Volunteer Signal Corps, the plan followed in 1861. The experience of the present war shows that the special requirements restricting the selection of the officers of the Volunteer Signal Corps secured the services of a large number of officers whose business experience and executive ability had previously been tested in electrical work, thus bringing valuable assistance to the Chief Signal Officer, who has supervision over the electrical work of the Army. This provision also tended to a measure to free the Signal Corps from appointments based solely on political preferment.

Another important advantage resulting from these special requirements of law, providing that a large percentage of the enlisted force of the Volunteer Signal Corps should be made up of electricians and operators, secured the services of a class of skilled men, possessing more than the average education, whose previous training enabled them to become proficient in signaling, including the use of the heliograph with but a few hours' practice work.

On June 2 the formation of the corps was commenced, and within thirty days from that date the corps was practically organized and equipped, and one of its companies had joined the Regular Signal Corps, which was then with the army in Santiago de Cuba. In a number of States local signal corps were so well organized that it only required two or three days to recruit an entire company, and as soon as the quota assigned to each recruiting officer was filled, telegraph orders were at once issued directing him to proceed with his detachment to Washington Barracks, D. C., for equipment and further instructions.

On the day of the passage of the bill the Chief Signal Officer issued the following circular, giving in detail a general plan for the organization of this corps, the number of officers for each organized division, and the pay of the noncommissioned officers and privates:

"CIRCULAR.

"The act of Congress approved May 18, 1898, authorized the President to organize a Volunteer Signal Corps for the existing war. It is provided that each organized division of troops may have two captains, two first lieutenants, two second lieutenants, who will be appointed and commissioned by the President.

"The number of enlisted men with their monthly rate of pay is as follows: Five first-class sergeants, \$54; 10 sergeants, \$40.80; 10 corporals, \$24; 30 privates, \$20.40.

"In addition to the above each enlisted man will receive rations, clothing, and quarters in kind, and medical attendance when required.

"Enlistments are not made by the Chief Signal Officer, but applications must be made to officers commissioned in the corps, whose rendezvous must be ascertained through the agency of the public press.

"No telegrapher will be enlisted unless he presents a certificate from a manager of the Western Union, Postal, or some other well-recognized telegraph organization that he is a competent operator, of high moral character, correct habits, and of such standing that the manager or superintendent signing the certificate would be willing to employ him as an operator in his own office. A similar certificate will be required for electricians enlisted or commissioned.

"Each man must pass a strict examination as to his physical qualifications, which will be determined by the Medical Department of the Army."

The applications for enlistment on file in the Chief Signal Office were examined, tabulated, and arranged according to their geographical district, and in all cases where recruiting officers were assigned they were furnished with a list of applicants residing in that geographical district, with instructions to communicate with such applicants, giving conditions under which enlistments would be made. The applicants were informed that enlistments in the Volunteer Signal Corps would invariably be made as privates, and promotion to the rank of corporal and sergeant would depend upon meritorious service.

The applicants were required to present a certificate of good character, and in addition thereto telegraph operators who enlisted as such were required to present a certificate from a manager of a Western Union, Postal, or some well-recognized telegraph organization that he was a competent operator and of such standing that the manager or superintendent signing the certificate would be willing to employ him as a telegraph operator in his own office. Similar certificates were required from electricians, and if the applicant was a minor he was obliged to furnish the written consent of his parent or guardian to his enlistment.

The corps was recruited almost wholly by its own officers, and, although without experience in military methods, I was agreeably surprised at the promptness with which this work was performed. Each recruiting officer was directed to enlist a definite number of men; two-thirds of the number were required to be telegraph operators or electricians. In some instances where organized signal corps in different States had been formed, men able to operate the heliograph were considered as telegraph operators.

Realizing the importance of properly prepared food in camp life, each recruiting officer was authorized to enlist two good cooks for his detachment. In the selection of the men the usual regulations governing the physical examination were somewhat modified by authority of the Secretary of War, and recruiting officers were authorized to accept men who, in their judgment, were able to perform the special work for which the Signal Corps was authorized, noting carefully on the enlistment papers any deviation from the standard, as given in the instructions of medical examinations. They were required, however, to satisfy themselves that each man enlisted would be able to perform military duty.

The Volunteer Signal Corps was made up largely of telegraph operators, and had it been necessary to comply strictly with the requirements governing the recruiting of men many excellent men would have been rejected, as telegraph operators, as a class, are usually undersized men. This fact was forcibly shown when the time arrived for uniforming the men. Early in June I made a requisition for 1,000 uniforms of assorted sizes to be shipped to the post quartermaster at Washington Barracks, and upon the arrival of the recruits I found it necessary to return about 400 uniforms, and secure in exchange thereof that number of smaller-sized uniforms, and owing to the promptness with which the officers in charge of the clothing department of the Quartermaster-General's Department acted the exchange of uniforms was effected without any delay.

Immediately upon the arrival of the detachments at the central station, Washington Barracks, I found that it would not be possible to fully equip the first companies for active service with the necessary signal equipments, as the contracts which had been made for the delivery of heliographs and lanterns were not to be filled until after a date when a portion of the forces should be in the field. I therefore requested that sufficient supplies be purchased from the State of New York for the equipment of the two companies furnished by that State. These companies had previously been organized as a part of the National Guard, and the State had fully equipped them with the necessary signal equipments for field work. An officer was ordered to Albany to confer with the State officials and arrange for the purchase of these supplies, and by this means two companies of the Volunteer Signal Corps

were equipped without a day's delay and the companies were enabled to go into the field properly equipped to perform any work which might be assigned to the corps.

This plan for equipping the companies for required work before they left Washington Barracks was uniformly followed, and the fact that each company carried with it in all its movements the necessary equipments for campaign work doubtless contributed largely to the uniform success which has attended the operations of the Signal Corps during the present campaign.

As there was a question as to the manner in which the companies of the Volunteer Signal Corps should be equipped, and realizing the necessity for each company being under its own control the necessary equipments for field work, I organized a board of experienced signal officers, with instructions to report the equipments necessary for each company to insure efficient work upon entering the field. This report was of such service in the equipment of the corps that I include it in this report, in order that it may be available for further use.

"CAMP OF INSTRUCTION, UNITED STATES VOLUNTEER SIGNAL CORPS,

"Washington Barracks, D. C., June 27, 1862.

"In pursuance of instructions from Col. H. H. C. Dunwoody, of the United States Volunteer Signal Corps, a board of officers consisting of Capt. Edward B. Ives, Capt. William H. Lamar, and Capt. Frederick T. Leigh, all of the United States Volunteer Signal Corps, are now at Washington Barracks, Washington, D. C., for the purpose of discussing with a view of recommending the uniform organization and equipment of the Signal Corps companies or detachments.

"The various officers of the corps stationed at this point, and also Capt. Edgar Russel, of the Volunteer Signal Corps, who was casually at the post, were present and took part in the discussion. After mature consideration for the organization and equipment of the companies of the Volunteer Signal Corps, the board reports unanimously as follows:

"First. In regard to company organization: Each company should be divided into eight squads of six men each, remaining seven men to be used for a relief of men who need it, for special duty as the captain of the detachment requires, for cooking, for clerical work, and for the administrative work of the company generally.

"The organization of each company is to be strictly on the 'squad' basis, the squad being a permanent organization, the members of which will live and meet together, become thoroughly well known to each other, and accustomed to each other's method of work. The selection of those who shall constitute each particular squad shall be the function of the captain, who shall do this according to technical fitness.

"The disposition of signaling equipments and supplies will also conform to the squad organization, and each squad shall be supplied with a uniform set of apparatus so as to enable it to act as an independent organization. The apparatus supplied to each squad is as follows:

1 signal kit with canteen and haversack.	1 heliograph.
1 signal lantern.	1 field telephone.
1 combination telegraph set, main-line	1 compass.
sounder.	1 telescope tripod.
1 telescope.	1 field glass.
1 camp stool, for telescope reader.	1 rip saw.
1 crosscut saw.	1 ax.
1 hatchet.	1 splicer.
1 pair climbers.	1 8-inch pliers.
1 "come along" and straps.	1 hand vise.
1 6-inch pliers.	1 small screw-driver.
1 6-inch Baxter wrench.	Assorted screws and nails.
1 large screw-driver.	1 100-foot rope (4-inch).
2 clasp knives.	1 bucket.
2 red-light railroad lanterns.	1 hand reel and wire.
2 white-light lanterns, railroad.	5 pounds office wire.
1 ball twine.	1 hand level.
6 pairs blue or smoked glasses.	1 18-inch ruler.
1 cavalry sketch board.	1 engineer's field book.
2 100-foot steel tape lines.	2 field message books.
1 blank book, 8 by 10 inches, 100 pages.	6 lead pencils.
2 fountain pens.	25 official envelopes.
2 scratch pads.	25 letter envelopes.
1 packing chest for above apparatus.	

"This apparatus will pack in a box or chest, approximately 54 by 15 by 20 inches and will, when packed, be in the best possible condition for care and transportation. Only in an emergency, or when the squad is pushing out to the front, and when car-

rying the chest is absolutely impracticable, then such apparatus as they may need may be taken from the box and carried by the men.

"It is to be understood and required that the proper place for this valuable and delicate property, except when in actual use, is in the box. In no other way can these articles be kept from being lost or injured during transportation, distribution, or care.

"In the selection of the equipment mentioned herein, the board has kept in mind that fact that the Department expects to furnish telegraph trains with wagons, apparatus, wire, etc., for building military telegraph lines. The apparatus and tools described herein, however, are such as are necessary for tapping and repairing lines, doing minor work, the construction of temporary lines where telegraph trains would not be available, and for visual signaling.

"It is further recommended that these articles be obtained from the available sources and proper departments, assembled in the prescribed boxes and stored at this post, to be delivered or shipped with company commanders on their requisition. It is deemed, in the opinion of the board, that this property should be so delivered to the company commanders before they start to the front, for the reason that if the property is not in such shape much of it would be lost, injured, or destroyed on account of the inexperience of the officers and men and confusion incident to organizing.

"In addition to the squad equipment enumerated, each company will be supplied with such camp and garrison equipage, stationery, books, blanks, ordnance stores, etc., as may be required. This will be governed by the locality and nature of the contemplated work, and will be supplied on special requisition of each captain, duly approved by the proper authority.

"Two boxes like those supplied to the squad are to be supplied to each company headquarters, in which are carried such miscellaneous and other articles, books, maps, stationery, blanks, etc., as pertain to a company; also one field desk.

"Second. In regard to arms: It is deemed inadvisable to arm the Signal Corps with any arms except the .38-caliber Colt's revolver, model of 1894. As the squads of the corps, when on duty, can always be properly protected by the line troops with which they are serving, it seems unnecessary to arm them. It is also recommended that each man be armed with an engineer's knife in a scabbard. These knives are very necessary in tropical countries in cutting through underbrush.

"Third. The question of the number of men mounted is one that can only be determined by the immediate local provisions. To avoid having any question as to the number of horses and horse equipments allowed to a company, it is recommended that the limit be not less than one for each enlisted man. In view of the amount of property to be carried, and the fact that the company is to be divided, it is recommended that the allowance of transportation of a signal company be three escort wagons. This in addition to the wagons that now constitute a signal train.

"The board respectfully requests that this recommendation, as modified and approved by the proper authority, be embodied in Army Regulations, in order that in considering requisitions for supplies there may be no question as to authority to issue, and in this way promptness in the equipment and supplying of companies will be obtained.

"This action of the board is taken by the advice of a Regular officer of experience in the issue of supplies, who strongly urges that the equipping of the Signal Corps shall, as far as practicable, be covered by succinct orders.

"Respectfully submitted.

"EDWARD B. IVES,

"Captain, United States Volunteer Signal Corps, President.

"WILLIAM H. LAMAR,

"Captain, United States Volunteer Signal Corps, Member.

"FREDERICK T. LEIGH,

"Captain, United States Volunteer Signal Corps, Member."

I forwarded this report to the Chief Signal Officer, with the following indorsement:

"WAR DEPARTMENT, CHIEF SIGNAL OFFICE,

"July 5, 1898.

"Respectfully forwarded to the Chief Signal Officer.

"Inclosed is a recommendation by three of the most efficient officers of the Volunteer Signal Corps, setting forth what is absolutely necessary for each company in order that efficient services may be performed in the field.

"I therefore recommend that the disbursing officer be authorized to supply the equipments named within so far as it may be practicable for at least twelve companies of the Volunteer Signal Corps.

"Each company should be well equipped before taking the field. I am prepared to supply uniforms, arms, tents and cooking utensils, and everything that is authorized by the ordnance quartermaster's supplies, but for the signal equipments, which

are of the most importance, I fear that some delay may be caused by failure of contractors to fill the orders for the signal equipments, and it is of the first importance that the Signal Corps should lose no time in supplying most of these equipments. There may be a few minor articles named in this requisition which can be dispensed with, such as fountain pens, etc.; but what we want are the signal equipments and the necessary articles to enable a signal party to work in the field."

This received the favorable indorsement of the Chief Signal Officer, which follows.

"WASHINGTON, July 7, 1862.

"The Chief Signal Officer appreciates the valuable suggestions made by the members of this board. He desires, however, to give the signal officers of each company and the captain of each company as free a hand as possible. Any desired equipment will be supplied at as early a date as the article can be obtained. The varied character of signal duties, entailing the management of field telegraph trains, balloon sections, etc., makes it difficult to say what shall be the equipment of any one company. For instance, the Signal Corps officers may desire to have one telegraph train, one balloon section, and one signal company, selecting officers and men for such duty."

I desire to state that in my judgment the liberal view which the Chief Signal Officer announced in the above indorsement, as a guidance to his assistants, enabled me to carry out the plan which I had in mind of fully equipping the companies before they left the rendezvous.

The organization had proceeded so rapidly that before June 30 twelve companies had been completely organized, and captains assigned to the commands, as follows: First Company, Capt. Elmore A. McKenna; Second Company, Capt. Howard A. Giddings; Third Company, Capt. Frederick T. Leigh; Fourth Company, Capt. Charles B. Hepburn; Fifth Company, Capt. William H. Lamar; Sixth Company, Capt. Charles S. Conner; Seventh Company, Capt. John B. Inman; Eighth Company, Capt. George W. Butler; Ninth Company, Capt. Edward B. Ives; Tenth Company, Capt. Thomas F. Clark; Eleventh Company, Capt. Carl F. Hartmann; Twelfth Company, Capt. Frank Lyman, jr.

The remaining six companies were in progress of formation, and captains to command were designated as follows: Thirteenth Company, Capt. George R. Geyer; Fourteenth Company, Capt. Charles T. McIntire; Fifteenth Company, Capt. Ambrose Higgins; Sixteenth Company, Capt. Samuel S. Sample; Seventeenth Company (balloon) —; Eighteenth Company, Capt. E. Russel.

The following recruiting stations were established:

Augusta, Me.: Enlistments were made under Capt. George W. Butler, who was authorized to enlist 40 recruits for the Volunteer Signal Corps. Ordered to Washington Barracks June 11. Was the first company to leave this station, June 12, joining the Fifth Corps at Tampa, and accompanied it to Cuba.

Boston, Mass.: Enlistments were made under Capt. Thomas F. Clark, who was authorized to enlist 60 recruits for the Volunteer Signal Corps. Ordered to Washington Barracks June 23. July 8 this company was ordered to Santiago de Cuba via Tampa, and arriving at its destination was not allowed to land there on account of yellow fever and returned to Tampa, after which, not being allowed to land there on account of yellow fever on the vessel, a large portion of it was sent to New York and afterwards assigned to the Fourth Army Corps, at Huntsville, Ala.

New York, N. Y.: Enlistments were made under Capt. Edward B. Ives, who was authorized to recruit 60 men for the Volunteer Signal Corps. Ordered to Washington Barracks June 23, from which station this company was ordered to Newport News to take steamer, joining the Porto Rico expedition under Gen. J. H. Wilson.

Brooklyn, N. Y.: Enlistments were made under Capt. Frederick T. Leigh, who was authorized to recruit 60 men for the Volunteer Signal Corps. Ordered to Washington Barracks June 23, from which station this company was assigned to the Third Army Corps, at Chickamunga Park. Both the New York and Brooklyn companies were made up of the signal corps of the National Guard of the State of New York and were almost exclusively made up of telegraph operators.

The third station was that at Albany, where enlistments were made under Lieut. H. G. Opdycke, who was authorized to recruit 20 men.

Hartford, Conn.: Enlistments were made under Capt. H. A. Giddings, who was instructed to recruit 40 men. This company was made up of men from the signal corps of the National Guard of Connecticut, ordered to Washington Barracks, and from this station, June 27, to the Seventh Army Corps at Jacksonville, Fla. Six men were recruited at Fort Trumbull, Conn., completing this detachment.

Newark, N. J.: Enlistments were made under Capt. Carl F. Hartmann, who was instructed to obtain 40 men from the signal corps of the National Guard of New Jersey. Ordered to Washington Barracks June 27, and on July 8 was assigned to the Second Army Corps, under Lieutenant-Colonel Strickland.

Philadelphia, Pa.: Enlistments were made under Capt. Ambrose Higgins, who was instructed to enlist 40 men. A greater number had been authorized, but owing to the rapid enlistments it was necessary to cut down the number of men which had been previously authorized in his instructions. Ordered to Washington June 23; from this station the company was assigned to Montauk Point, Long Island, where complete telephone and telegraph lines were erected for the use of troops returning from Cuba, also an electric-light plant which was placed in operation within two weeks after authority had been given for its installation.

Washington Barracks, D. C.: Enlistments were made under Capt. William H. Lamar, who was assigned as recruiting officer of the Volunteer Signal Corps. Recruits were obtained from the signal corps of the National Guard of Maryland, and recruits were enlisted from the States of Virginia and Maryland. He enlisted 55 men, and remained as recruiting officer at the barracks until his company left for the field. A number of men enlisted by him were assigned to other companies. On July 8, with his company, he was ordered to Charleston, S. C., to accompany the Porto Rico expedition, under Gen. J. H. Wilson.

Indianapolis, Ind.: A portion of this company was enlisted by Lieut. Charles H. Martin, who was afterwards transferred to Pittsburg, Pa., where he enlisted a detachment of 15 men. The Indiana company was completed by Capt. Charles T. McIntire, and made up largely of men from the signal corps of the National Guard of Indiana. This company brought with it the signal equipments furnished by the State, which were purchased by order of the Chief Signal Officer. Ordered to Washington Barracks July 2, from which station it was assigned to the Seventh Army Corps at Jacksonville, Fla., where it remained until mustered out.

Columbus, Ohio: Enlistments were made under Capt. G. R. Gyger, of the signal corps of the Ohio National Guard, where he obtained 30 men. Lieut. H. D. Coe was assigned to Cleveland, Ohio, where he enlisted 20 men. Ordered to Washington Barracks July 5. This was the last company to leave Washington Barracks, but detachments were furnished from this company for Montauk Point, Long Island, to aid in the installation of the electric-light plant at Camp Wikoff, and details were also furnished from this company to put in telephonic communications at the hospitals of Forts Myer and Monroe.

Springfield, Ill.: Enlistments were made under Capt. John B. Inman, who was authorized to recruit 20 men. Capt. John W. McConnell, of the same city, was assigned to duty as recruiting officer at Chicago, Ill., where the greater portion of the Illinois company was recruited. Ordered to Washington Barracks June 27. From this station the company was ordered to Chickamauga Park as a part of the signal battalion of the First Army Corps.

Des Moines, Iowa: Enlistments were made under Capt. Frank Lyman, jr., who was instructed to enlist 50 men, largely made up from the signal corps of the Iowa National Guard. Ordered to report to Washington Barracks June 23, from which station the company was ordered to Chickamauga Park and assigned to the Third Army Corps.

St. Louis, Mo.: Enlistments were made under Capt. Samuel S. Sample, who was authorized to enlist 20 men, it being necessary to cut down the number previously assigned as his quota, owing to rapid enlistments. Lieut. W. W. Colt was assigned as recruiting officer at Kansas City, with instructions to enlist 30 men. On July 11 orders were issued directing the Missouri company to report to the Washington Barracks. From this station the company was assigned to Camp Thomas, Chickamauga Park, relieving the signal battalion of the Fifth Army Corps, which had been ordered to Porto Rico.

Smaller detachments were enlisted at Nashville, Tenn., by Lieut. Charles B. Rogan, Jr., who secured a detachment of 20 men; Lieut. J. J. Ryan enlisted 15 men at San Antonio, Tex.; Lieut. A. J. Rudd enlisted 15 men at Fort Snelling, Minn. The men from Fort Snelling were ordered to the Pacific coast for the Manila expedition, as were also 6 recruits from Fort Harrison, and 23 men, in charge of a sergeant, were sent from Washington Barracks, with instructions to report to Major Thompson for duty. Ten telegraph operators were enlisted at Raleigh, N. C., for the Manila expedition. The remaining portion of the two companies organized at San Francisco were made up from recruits enlisted for the service at that point.

The above shows that 820 enlistments were made for the Volunteer Signal Corps under my direction and the remaining portion of the corps was made up of men transferred from the line of the Army, at their own request, and these men were, in almost every case, skilled electricians or telegraph operators.

Immediately upon the arrival of troops at Washington Barracks a school was organized for the instruction of the men in practical work of constructing and operating telephone and telegraph lines. The men were also exercised in cavalry drill, having secured the horses left by the light battery which had recently left the barracks for Manila. Although little time was available for such instructions the recruits made rapid progress in the work. Lectures on the general duties of signal officers, given by those of most experience, were also regularly attended by all commissioned offi-

cers at the camp. Telegraph tests as to the efficiency of the men as operators were made at night after the drill of the day, and in some cases competitive tests as to the rate of receiving were made, and attended with enthusiasm, which developed the fact that among these men were some of the best operators in the United States.

Officers receiving appointment in the Volunteer Signal Corps, in most cases were ordered to report to me at Washington Barracks, where the companies were formed and officers assigned thereto.

The organization of the companies, such as the appointment of noncommissioned officers was, by the direction of the Chief Signal Officer, almost exclusively placed in the hands of the commanding officers of the different companies, although political pressure was frequently brought to bear by those interested to secure preferment to the noncommissioned force.

For the purpose of arming the command, a requisition was made for 500 carbines and 500 revolvers of .45 caliber. This caliber was taken on account of the limited supply of smaller caliber in the Ordnance Department. The carbines were selected as the most suitable arm for mounted troops, and the revolvers were intended more especially for the members of the corps assigned to telegraph and telephone work. The character of the arms of each company was left to the commanding officer, but the majority of the companies were supplied with carbines.

In Inclosure A will be found a report showing organization of companies of the Volunteer Signal Corps upon entering active service.

In Inclosure B will be found a narrative report of the organization of each company of the Volunteer Signal Corps, setting forth the qualifications of the men, their previous training and vocation, place of enlistment, character of equipment and the training received before leaving station for duty in the field.

In Inclosure C will be found a list of the signal equipments and Government property supplied to each company.

In closing this report I desire to place on record my high appreciation of the sterling qualities of this superior organization, including both the commissioned force and the enlisted men, many of whom left lucrative positions in civil life to enter the military service, in which the pay was practically no consideration, while they brought with them that skill and education which enabled them to master with readiness all details of the technical service which they were called upon to perform.

I uniformly found not only a readiness but a desire to master the details of military service. Both officers and men were not satisfied with the usual instruction and practice in signaling, and it was not an unusual occurrence to observe squads of men continuing the exercises after the regular hours for drill.

In the above report I have briefly set forth the plan followed in the organization of the Volunteer Signal Corps, the brilliant services rendered in the field by the organization having been well stated by yourself in the congratulatory order issued on the occasion of the mustering out of the Fifteenth Company, the first to leave the organization after the cessation of hostilities.

Very respectfully,

H. H. C. DUNWOODY,
Colonel Signal Corps, United States Army.
Assistant Chief Signal Officer

INCLOSURE A.

REPORT SHOWING ORGANIZATION OF COMPANIES OF THE VOLUNTEER SIGNAL CORPS UPON ENTERING ACTIVE SERVICE.

Officers.	Noncommissioned officers.				Privates.	Total enlisted.
	First sergeants.	Ser- geants.	Corpo- rals.	Musi- cians.		
First Company	1				54	
Capt. E. A. McKenna.						
First Lieut. P. J. Perkins.						
First Lieut. W. W. Chance.						
Second Lieut. C. E. Kilbourne, jr.						
Second Lieut. A. J. Rudd.						
Second Company	5	8	11		29	
Capt. H. A. Giddings.						
First Lieut. S. M. Butler.						
Second Lieut. Wm. Mitchell.						
Third Company		4	5		25	
Capt. F. T. Leigh.						
Capt. E. W. Winfield.						
First Lieut. Wm. Jarvie, jr.						
Second Lieut. Francis Creighton.						
Second Lieut. H. C. Baldwin.						

Report showing organization of companies of the Volunteer Signal Corps, etc.—Continued.

Officers.	Noncommissioned officers.				Privates.	Total enlisted.
	First sergeants.	Ser-geants.	Corpo-rals.	Musi-cians.		
Fourth Company		2	4		37	47
Capt. C. B. Hepburn.						
First Lieut. P. W. Crawford.						
Second Lieut. E. C. Lee.						
Fifth Company	5	10	10		30	55
Capt. Henry H. Canfield.						
Capt. William H. Lamar.						
First Lieut. W. F. M. Rogers.						
Second Lieut. Max Wagner.						
Second Lieut. B. O. Lenoir.						
Sixth Company	5	10	10	1	29	55
Capt. C. S. Conner.						
First Lieut. H. D. Coe.						
First Lieut. F. P. Tate.						
Second Lieut. E. E. Bawse.						
Seventh Company	5	7	9		27	48
Capt. J. B. Inman.						
Capt. J. W. McConnell.						
First Lieut. A. G. Thompson.						
Second Lieut. E. N. Gillespie.						
Eighth Company	2	6	7		24	39
Capt. George W. Butler.						
First Lieut. C. E. Walker.						
Ninth Company	5	9	10			
Capt. Edward B. Ives.						
First Lieut. W. Woodard.						
First Lieut. J. D. Wood.						
Second Lieut. W. T. Davenport.						
Tenth Company	5	8	8		30	51
Capt. Thomas F. Clark.						
First Lieut. C. H. Martin.						
First Lieut. H. W. Sprague.						
First Lieut. Don A. Palmer.						
Eleventh Company	4	7	9		36	56
Capt. C. F. Hartmann.						
First Lieut. Hugh Haddow, jr.						
First Lieut. C. D. Chandler.						
Second Lieut. Carl Darnell.						
Second Lieut. B. B. Daggett.						
Twelfth Company	4	11	7		44	66
Capt. Frank Lyman, jr.						
First Lieut. H. G. Opdycke.						
First Lieut. R. B. Oglesbee.						
First Lieut. C. B. Rogan, jr.						
Thirteenth Company	2	4	10		39	55
Capt. G. R. Grigor.						
First Lieut. C. M. Duffy.						
First Lieut. P. J. Reddy.						
Second Lieut. Gustav Hirsch.						
Fourteenth Company	4	10	9		23	46
Capt. C. T. McIntire.						
First Lieut. W. S. Wright.						
Second Lieut. M. H. Baldwin.						
Fifteenth Company	5	10	9		24	48
Capt. Ambrose Higgins.						
First Lieut. Newton Cannon.						
Second Lieut. W. W. Colt.						
Second Lieut. Horace C. Lansing.						
Sixteenth Company	5	10	10		30	55
Capt. S. S. Sample.						
First Lieut. A. G. Thompson.						
Second Lieut. W. E. Davies.						
Second Lieut. W. C. Cannon.						
Seventeenth Company	1	14	10		27	52
First Lieut. L. D. Wildman.						
First Lieut. V. Shepherd.						
Second Lieut. T. R. J. Campbell.						
Second Lieut. C. S. Wallace.						
Balloon		6	1		10	17
Capt. A. B. D. Smead.						
Field Telegraph		1	2		20	23
Capt. C. C. Clark.						
First Lieut. J. P. Wooten.						
Second Lieut. W. M. Talbott.						
Second Lieut. A. J. Dillon.						
Independent					17	17
Capt. D. J. Carr.						
Capt. J. J. Ryan.						
Capt. John W. McConnell.						
First Lieut. R. O. Richards.						

INCLOSURE B.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE VOLUNTEER SIGNAL CORPS

OFFICE OF THE CHIEF SIGNAL OFFICER,
HEADQUARTERS SECOND ARMY CORPS,
Camp George Gordon Meade, Pa., September 12, 1898.

The CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.

SIR: I have the honor to submit herewith a narrative report embracing the period from about June 9 until August 7, 1898.

In pursuance of S. O., No. 135; c. s., A. G. O., I opened an office in New York City, the office being the armory of the First Signal Corps, National Guard, New York. The armory was kindly tendered to me by Capt. Homer W. Hedge as a recruiting office.

I was instructed to enlist 50 recruits, and upon completion of this to report the fact to the Chief Signal Officer. In order to expedite the enlistment of these recruits I took advantage of the fact that New York City included the boroughs of Brooklyn, Bronx, etc., as well as Manhattan, and also established an office at No. 801 1/2 11th street, Brooklyn, the armory of the Second Signal Corps, National Guard, New York. The use of this armory was tendered me by Capt. F. T. Leigh, signal officer, National Guard, New York, who had received an appointment in the United States Volunteer Signal Corps, and who was also recruiting at the same point. We were authorized to use this armory as a rendezvous until the required quotas were enlisted, after which we would proceed to Washington Barracks, D. C. In recruiting men for the Signal Corps I endeavored to obtain as many telegraph operators, electricians, linemen, and electrical engineers as possible, while my instructions required that two-thirds of all men enlisted should be either operators or electricians. I used every endeavor to have all of them such, and I restricted the acceptance of those not thus technically qualified to men who had seen previous service in the Army or National Guard, with three exceptions, two of whom were cooks, and one an experienced horseman whom I had selected to be instructor for my men in the care of their horses.

I was very much assisted in my work by telegraph and telephone companies, electric-light companies, and the newspapers, all of whom gave their best endeavor to make the desires of the Government known, so that I was enabled to select the best from a large number of applicants.

I was authorized by the Surgeon-General to employ a civilian physician to conduct the physical examinations, and selected for this purpose First Lieutenant Campbell, assistant surgeon in the New York Signal Corps. He performed this duty very strictly, and I consider the good showing that my company made as regards health and physical condition due to his care.

Upon completing the enlistment of 50 recruits, I reported the fact to the Signal Office, and was authorized to enlist 10 more telegraph operators, if possible. I succeeded in doing without any trouble whatever. The company as recruited consisted of about one-third telegraph operators, one-third electricians and linemen, and one-sixth men who were not only telegraph operators, but also electricians and linemen, and one-sixth ex-regulars and ex-members of the New York National Guard. Many of the telegraph operators and electricians had had previous military experience in the National Guard. I can only approximate in this, for the reason that I have not access at present to the company papers.

Each applicant for enlistment was required before he was accepted to present a certificate of good character from his employers, and a certificate from the manager of the Western Union, Postal, Bell Telephone, or an electric light company that he was a man of such capacity and qualifications as would satisfy their requirements if he sought employment with them. These certificates were all attached to the enlistment papers, and are now on file in Washington. In addition to these enlistments there were three special enlistments by order of the Chief Signal Officer, viz, Andrew Spratt, and Lumb. Spratt and Lumb presented themselves with a statement that they were to be enlisted as sergeants. To this I demurred, and after considerable discussion they agreed to enlist as privates, subject to my approval, their appointments as noncommissioned officers being subject to my future approval. I have insisted that when my company should take the field and go to the front that I have the right and power to reduce to the ranks any noncommissioned officer whom I deemed unfit to hold that position, and that as they were without technical skill as telegraphers or electricians and without previous military experience, that I could not consider them as capable noncommissioned officers. I would state, in parenthesis, that Lumb and Andrew were transferred from my company, and that Spratt proved himself subsequently in every way qualified to act as a sergeant.

About the 25th of June I proceeded with my detachment to Washington Barracks and was there organized as the Ninth Company of the United States Volunteer Signal Corps. During the period of June 9 until June 25 the detachment was quar-

tered in the armory of the Second Signal Corps, No. 800 Deane street, Brooklyn. Those men who so desired were allowed to take their meals and live at home. Those who did not were quartered in the armory. The routine of company work was established, and two drills a day in signaling and in the school of the "soldier dismounted" were required, at which all the men who were enlisted had to be present. Captain Leigh, the commanding officer of this armory, deserves thanks for this very convenient offering of his quarters. It caused his men to be crowded and inconvenienced, but he cheerfully and willingly did everything he could to make the men comfortable, and assisted me in getting my detachment into military shape.

After I arrived at Washington Barracks my instructions were to proceed with my company to Santiago de Cuba, but there being some delay in the furnishing of equipments, I was instructed to proceed to Albany, N. Y., and purchase the signal property pertaining to the New York Signal Corps. With this equipment I was ready for duty at the front. When I returned from Albany a number of my men had been transferred to Captain Russel's company, with orders to proceed to Manila, and their place was taken by an Ohio detachment of 20 men, who had just arrived at Washington Barracks under command of First Lieutenant Coe. I knew nothing of these men and was a little anxious at first, fearing that they would not be of as high an order of technical and other merit as the men whom I had brought from New York, but they proved to be first-class—First Lieutenant Coe having selected them himself, and being an officer well-fitted for his duties. First Lieutenant Woodward and Second Lieutenants Davenport and Wood were assigned to my company as lieutenants. Lieutenants Coe and Davenport were telegraph operators. Lieutenant Woodward was not only a telegraph operator, but an electrical engineer of considerable experience. Lieutenant Wood was without previous experience, military or technical.

Upon the 4th of July I left Washington Barracks with my company and proceeded to Newport News, Va. From there my orders were to go by the first transport to Santiago de Cuba and report to Major Greene, chief signal officer of the Fifth Army Corps. Up to that time my company had been taking their meals with Captain Leigh's company, and when the time came to leave there was no way of making an equitable division of the rations, owing to the fact that the bread and meat rations were issued daily, the ration return having been signed for several days ahead. The post commissary was ill and unconscious and there was no commissary sergeant, the civilian clerk of the commissary being absent on a holiday. I therefore had to proceed without any rations whatsoever—travel, or otherwise. Fortunately, I had on hand about \$100 left over from funds which had been invoiced to me when I was recruiting officer in New York City. I took the responsibility of using this money to purchase meals for the men until I could draw rations at Newport News. Having arrived there, the company went into camp to await the departure of the transport, *La Grande Duchesse*, which was being prepared for service. During this period the men were instructed in the routine of camp duty, the methods an importance of hygienic and sanitary precautions, and were also drilled twice a day in the school of the "soldier dismounted" and in signal drill. In due time, about the 7th of July, we boarded the transport, at the same time turning in our property for shipment. We sailed from Newport News on the following day and proceeded to Charleston, S. C., where additional troops were to be loaded on the steamer. During every day of the trip there was theoretical instructions and signal drill. The cabins and quarters of the men were regularly inspected and every effort made to impress upon them the necessity of scrupulous cleanliness and carefulness in diet. They were assigned in squads to various lifeboats and instructed what to do in case of impending catastrophe. They were regularly bathed in squads, the water being played over their bodies from a hose. I would state in this connection that no relaxation as regards cleanliness and hygienic methods was ever allowed, no matter how hard worked or tired the men might be, and I am glad to be able to report that they cheerfully acquiesced in this at all times, even when they were almost physically exhausted with hard and unaccustomed work, and to this cheerful subordination on their part must be given the credit for their healthy condition, from the time they left Washington Barracks to the time I left them in Porto Rico, on August 7. After our arrival at Charleston, S. C., orders were received holding the transport at that city until further orders; then came instructions that the ship was not to go to Santiago, but was to go to Porto Rico. As the orders for the Ninth Company took them to Santiago, and as the property belonging to that company was buried under a thousand tons of general stores, and as the indications were that the Ninth Company was to be ordered ashore to take some other transport to Santiago, and as the weather was intensely hot, I was caused much anxiety lest I might be required either to be separated from my property and equipment, or compelled to handle the entire cargo of the vessel in order to get our signal property. For this reason, Santiago having capitulated, I felt justified in asking that my orders be changed and that I be sent with my command to Porto Rico. My orders were so changed.

During the time my company was in Charleston I am proud to report that the conduct was most exemplary. They had five consecutive hours' drill daily at visual signal work, the object being to accustom to the long-continued transmission of messages and the resulting strain that would follow upon nerves and eyesight. The rest of the time I gave them all the liberty I could, they living on board the ship, and I found that I had no reason to regret so doing. The members of the company were the recipients of much hospitality from the citizens of Charleston, which took its form principally of offering food and drink indiscriminately. The men, however, had learned by this to look out for themselves, and there was not as much sickness as I had feared. We had some, owing to the drinking of ice water and overindulgence in melons and other fruits. Just before sailing, the surgeon on board of the ship reported that First Lieutenant Coe was suffering from a very high fever, typhoid being suspected. There was no time to consult the Department, so I took the responsibility of ordering him ashore, and detailed First-Class Private Brubaker to attend him. We had just time to get these men off the ship when it sailed. I regretted losing Lieutenant Coe very much, as he had up to that time had charge of the property, was a good signal officer, and a man both careful and industrious. The journey from Charleston to Porto Rico was without incident. Toward the latter part of the trip there was considerable suffering, due to the lack of good drinking water, which was brackish, owing to the condensers having broken down to an extent that allowed salt water to leak in. When off the eastern coast we were hailed by the U. S. cruiser *Columbia* and instructed by order of Major-General Miles to Guanica, a port about 20 miles west of Ponce. At Guanica we remained only long enough to unload some of the horses, and then proceeded to Playa de Ponce, where the final disembarkation was to take place. There the command went ashore and established camp at the landing hut of the English Panama Cable Company. When the *Greaves* arrived off Ponce, information was received that the stores on board were not to be delivered at Porto Rico, but were to be sent on to Santiago. This necessitated overhauling the entire cargo to get at the property pertaining to the signal company. This exhausting and laborious work was done almost entirely by the Signal Corps. It was very important that we should get all of our supplies. Unfortunately, we did not. A part of our ammunition and property was overlooked, and just as the ship sailed a report was sent me that some of it had been found. For Charleston, south, the ship was very much crowded. Five men were assigned to each stateroom, and the necessities of all kinds were inadequate, so that the discomforts of the men were extreme. Notwithstanding this they were cheerful and willing to do more than their share of the labor that fell upon them. They performed guard duty in addition to drill and technical instruction. This was made necessary by the fact that the volunteer regiment which accompanied us on the trip was undisciplined, and contained petty thieves. We had landed at sunset. The next morning, without waiting instructions, visual signal stations were established. One on top of the custom-house, which was right at the wharf, and in which General Miles had established his headquarters, and other stations upon such of the transports as were being unloaded. It was found that the swinging of the vessel with the changing of the tide, caused signaling to be impossible to some of the ships that were farthest out at sea, they becoming screened by those nearest shore. It therefore became necessary to establish an auxiliary station on the Light-House Island at the entrance of the harbor, which was used to relay the messages to the ships which could not be communicated with directly. The work done by the signal stations facilitated the disembarkation, in that the naval officers detailed to superintend the work could be immediately notified when the lighters at the ship were loaded or when empty lighters were required at the ship's side. There were a number of these lighters captured from the Spaniards when our command entered the harbor, but the only means of taking them to and from the shore were the steam launches of the men-of-war, of which there were only three in service. It therefore became necessary that the time of these launches should be fully occupied, and that they be constantly employed either in getting empty lighters to the ships or loaded lighters from the ships to the shore. This work was managed by a Lieutenant of the Navy, detailed for that purpose, and was facilitated by the Signal Corps, which enabled him to communicate instantly with any transport. These visual stations were under the charge of Second Lieutenant Wood, and the details of the work were left entirely to him.

The telegraph offices were under charge of Second Lieutenant Davenport, Ninth Company. Telegraph offices were established at the following points the day after we landed: General Miles's headquarters, the cable office, the cable hut on the east shore, where the Ninth Company was camped, the town of Ponce, General Wilson's headquarters in Ponce, the railroad station in Ponce, the town of Yauco, one or two temporary intermediate stations, between Yauco and Ponce, for the convenience of the troops marching from Yauco to Ponce, which stations were abandoned when these movements were completed. There was also a station at Guanica. The Ninth

Company furnished operators and messengers for General Miles's headquarters, the cable office, and company camp. It also furnished a few operators scattered among the other offices, which offices, however, were principally manned by details from Captain Lamar's company. The station at Guanica was manned by a detail from Captain Clark's signal train. The line from Guanica to Yauco was a military line, on lance poles, built by his company; the rest of the lines were the Spanish Government lines repaired and put in order. Lieutenant Davenport, Ninth Company, had charge and supervision of all these lines, with a detachment organized after the manner of the commercial telegraph companies. He had his chief operator, his chief lineman, and assistants, all with their duties succinctly specified. As in the case of Lieutenant Wood, the instructions given him were general in their nature and the details were left entirely to him to work out upon his own responsibility.

I would state in parenthesis that when I first took command of the company I performed the duties of captain, lieutenant, first sergeant, company's clerk, and everything. I found, however, that this arrangement would not do, that the officers, noncommissioned officers, and men, all seemed to rely upon the captain's taking the initiative in the most minute particulars, so that the discipline and efficiency of the company was not progressing as rapidly as the intelligence of the men would warrant me to expect. I therefore made up my mind to assign the different branches of the work to the officers and noncommissioned officers, and allow them to act more on their own responsibility. The result was that, while some of the work was not done possibly as well as I would have wished, yet in the end the result was much better than I was accomplishing by doing all the work myself, and I found that by correcting mistakes little by little, by changing things slightly from day to day, and by giving instructions in small quantities, the improvement, though gradual, was permanent, and the self-reliance and industry of the officers and men materially strengthened.

It gives me pleasure to state in this particular that during the entire time I was in command I did not find it necessary in a single instance to speak a harsh word to either officers or men. The charge of the company camp at the cable hut was put in the hands of First Lieutenant Woodard. His duties were to see that the camp was kept clean, that hygienic principles were enforced, that the meals were well prepared and promptly served, that the discipline was good, the property well cared for, and the requisitions for men by Lieutenants Wood and Davenport would be promptly filled by members of the command whose technical attainments were best suited for the work which they would have to do. For this purpose Lieutenant Woodard remained in camp all the time, there being occasions when there was no one there but himself, the first sergeant, and cook. I do not remember of his leaving camp once to visit the town of Ponce to see the sights, to visit officers, or to take advantage of any of the possible relaxations which come from time to time to soldiers in the field. He performed his duties cheerfully, conscientiously, and with industry, though he, of all the command, was the one who might have had cause for complaint. His work was hard, arduous, and made no ostensible show whereby he could have the gratification of obviously accomplishing results. The skill and tact with which he performed this duty and the justice with which he apportioned the work among the various details of men had much to do with the successful administration of the company, and in leaving it in his command I felt absolute confidence that things would go on smoothly and effectively. If there is a possibility of promoting him he will prove a valuable officer, being a civil engineer by profession, a telegraph operator, and a man of executive ability above the average. All the officers of the company were temperate in the use of stimulants.

My duties during this period consisted in keeping a general supervision over the entire company and endeavoring to find out and anticipate the requirements of the command. The Signal Corps started into this war with a burden upon it of having to prove the necessity of a signal corps. This was a great disadvantage, in that it required an ambitious officer to anticipate where the services of the corps might possibly be required, and involved the expenditure of much labor which subsequently was proved to be unnecessary. At the same time this labor was not to be regretted, in that from the first it trained our men to habits of industry and thoroughness, and will result, in my opinion, in the development of a substantial lot of soldiers suitable as candidates for a permanent corps should this branch of the service be increased hereafter.

The telegraphic and electrical work done by the company consisted in putting up an independent circuit from General Miles's headquarters to the cable office. This was done with a view of requiring all the cable messages to be filed originally with the Signal Corps and tended to help us to retain absolute control of the cable messages. All cablegrams were received at headquarters and were telegraphed to the cable office, and from there sent out of the country. We had an all-metallic open-circuit system for the work, and the circuit was used for no other purpose. The

other telegraphic line was worked on the closed-circuit system. Starting from a gravity battery at the cable office it passed through the cable hut, thence to headquarters, then back to the cable hut, thence back to the cable office, thence to a battery at Captain Lamar's company barracks at Ponce, thence to General Wilson's headquarters, thence to the railroad station at Ponce, thence to Yauco, thence through battery at Guanica to ground. From the cable office to Ponce we used the old Government line repaired. From the railroad station to Yauco we used partly the railroad and partly Government wires. From Yauco to Guanica we used a field line put up with lances by Captain Clark's company. The telephones were not used much, only when the lines were too bad to work the telegraph, and for advance and scouting parties. It was replaced by the telegraph as soon as possible. In visual signaling we used all the apparatus furnished except the torch. The torch was never used at all. At night we found the flash lantern or two ordinary railroad lanterns perfectly satisfactory. We used one lantern for footlight and swung the other from right to left and the reverse, so as to make letters according to the Morse code. For short distances this could be done with one hand. For longer distances the lantern was passed from hand to hand as it swung past the center, and for extra distances the operator stepped to the right as far as he could when swinging to the right and to the left when swinging to the left. The flash lantern, however, was the most satisfactory at night and the heliograph in the daytime. Strict discipline soon made the men exact and particular in preserving the adjustment. The men, however, were not prepared to read it readily, and in most cases called for the flash lantern.

At this point I would state that each company should be provided with two sets of international code flags and two international code books. These latter should have an appendix added for such military messages as would most likely be sent. We were at a disadvantage in not being prepared to communicate with the navy by means of their code. The code book, by means of the abbreviations used, was shortened enormously the time of sending messages by the signal flags. Since messages sent by flag were not being paid for, there was no way to make the writers condense and valuable time was taken up in transmitting useless verbiage; at the same time none of us cared to take the responsibility of editing and condensing any of the messages given us to transmit.

The conclusions I have drawn from what I have seen and experienced are as follows:

That paragraph of the law which provides that each division shall have two captains, two second lieutenants, etc., has resulted in a misunderstanding. Each division commander seems to look upon a signal company as part of the effective force of the division, whereas circumstances may require that one division shall be served by almost two companies, while another division may be amply served by a single detachment. It should be well understood that all the signal companies of a division should be under the immediate jurisdiction of the chief signal officer, and that the commanding general of the corps shall assign companies or detachments to the division as seems best according to circumstances. Where the division is independent it should have a signal company actually attached to it, but otherwise its signal force should be governed by the existing conditions. It is these same existing conditions which regulate the equipment of a signal company or detachment, and no fixed rule can be made to establish a uniform of a company. The efficiency shown by my company at Ponce was due to the fact that its equipment was meager as far as horses and transportation were concerned. As a result of not having horses, mules, or wagons to care for, my entire company could be assigned to duty as signalmen, telegraphers, and linemen, while other companies had almost all they could do to look after their animals and transportation. Nevertheless, Captain Lamar's company was able to show especial efficiency owing to the fact that he was well provided with horses and wagons, so that while he had few men handy doing signal work, yet his company, as an organization, did valuable service. This made obvious the fact that equipment was determined by surroundings. To accomplish this, however, necessitated that I, who was senior to him, should assume the work and duties of a junior as we were in the beginning both attached to General Wilson's division, and as the senior signal officer present I had the right to take charge of the more immediate work around headquarters, which I could not have done and gotten the best results from the two companies.

There was no friction whatever, but from my experience as an officer in the Army I can state that the possibility of friction and poor service resulting therefrom were very obvious, and I was anxious about the matter all the time that this condition existed. When Lieutenant-Colonel Reber arrived my company, Captain Clark's signal train and Captain Lamar's company were consolidated under Colonel Reber's command, the resulting organization being very satisfactory to all but General Wilson, who opposed the taking away "of my signal corps." There is no question but that he should have had a detachment, possibly an entire company, or

even more than a company, but men and material should have been furnished him by Colonel Reber, who could have selected both, according to the necessities of the prospective signaling about to be done.

I concluded from all this that the chief signal officer is the individual who should command the organization and storehouse, where most of the supplies can be kept to be issued to the companies in such quantities as the immediate work requires. The question of the supplies and equipment of a signal corps is one requiring thought, and which can not be overlooked or slighted. We lose sight of the fact that the Signal Corps may be considered to consist primarily of property and incidentally of men, in that it is the material and apparatus which is indispensable to the proper performance of their functions. The tendency on the part of the commanding officers and others is to overlook this. Results are expected simply from the presence of men with cross flags on their hats, irrespective of what apparatus they may have with them, it being so easy to say, "Let a flag be improvised." A number of signalmen not completely supplied and equipped is no more a signal corps than artillerymen without cannon are artillery, or cavalrymen without horses are cavalry. Another point is that military instructions and preparation in time of peace should include a thorough appreciation of the importance of a signal corps. It is impossible that this branch of the staff should accomplish its best results unless commanding generals appreciate its usefulness. The chief signal officer should be thoroughly posted in advance of intended movements, so that important locations can be connected to headquarters as soon as occupied. It is a mistake to have to wait until an important point is occupied by troops before commencing preparations for establishing communications with it.

In regard to the arms: We found carbines a source of trouble without any prospect of an opportunity to use them. All the other officers commanding companies agreed with me in this and considered that the only firearm suitable for signalmen was the pistol. Lieutenant Coe's Ohio detachment brought with them a number of bowie knives and scabbards. These proved to be most serviceable in many ways, and I would recommend that each signalman carry such an instrument. They are indispensable in clearing away underbrush and freeing the electric wires from "grounds."

In regard to equipments: The electrical and visible equipments furnished the Signal Corps are everything that could be desired. The torch, however, is unnecessary and its use should be discontinued. It is heavy and takes up valuable space. For the care of the smaller tools, visual apparatus, etc., it is indispensable that each company should be provided with six or eight packing boxes, these to be uniform and to be filled each with a complete set of tools and apparatus necessary to completely equip a signal station. I was unprovided with these boxes, while Captain Lamar had succeeded in obtaining them, so that it was possible to compare the work of the two companies, one having them and one not having them. It is almost impossible to avoid losing the smaller articles unless such boxes are provided, each with an inventory of its contents marked on the inside of the lid.

In regard to transportation: The amount is regulated by the amount of property which each company may be called upon to carry along with it. As this is regulated by circumstances, I would recommend that the transportation be furnished to the chief signal officer, who apportions it out among the different companies according to their actual need. The same reasons govern this as those regulating the equipment.

In regard to the number of men who should be mounted on horseback: I am opposed to any being mounted except the five first-class sergeants. To have more horses takes away men who can be better employed in actual signal work than in the care of horses. Further, it is an inducement to throw upon the signal companies more than their share of orderly work.

In regard to bicycles: They are very valuable in some cases and of no use whatever in others. Where an army corps is consolidated in camp or is in a country provided with good roads, at least five to each company is none too many.

In regard to drill and instruction of a signal corps: The rules and principles laid down in Myer's Manual can not be improved upon.

In regard to the personnel of the Signal Corps: The legal requirements that two-thirds shall be telegraph operators or electricians is just about right. Electricians seem to be of a class naturally ingenious, and make good all-around men. Many telegraphers can be obtained who are also electricians. The remaining one-third will furnish the necessary cooks, clerks, stenographers, teamsters, and hostlers which are necessary to each organization, but what is most essential of all is that every man before going into active service shall be a soldier. Every day since I have been in the volunteer service I have been more and more impressed with the fact that it is absolutely impossible to do soldiering without soldiers, the general impression of the American people to the contrary notwithstanding. There seems to be four stages in the passage from a recruit to a soldier: First, when he puts on a

uniform and thinks himself a soldier; next, when he has seen a little drill and looks like a soldier; third, when he begins to act like a soldier, and finally when he thinks like a soldier. Until he reaches the latter condition he is not fit for anything from a military standpoint. He is a care on the officers who know their business and a source of danger to himself and those in his vicinity. For this reason it will be essential in time of peace to have a highly trained Signal Corps capable of being enlarged to the requirements of war. Their pay must be high to attract the proper technical skill. They must be thoroughly instructed in military requirements and drilled to a high degree of efficiency. From what I have observed in actual service and from my experience as professional electrical engineer, I am convinced that the Signal Corps should be officered by men of talent and attainments above the average.

In regard to the organization of the Signal Corps: The present one is admirable in all particulars but one. It is for some reason impracticable to have two captains to a company. I can give no arguments theoretically against it, but observation has convinced me that it simply does not work and seems to be a cause of trouble and heartburning.

Very respectfully,

EDWARD B. IVES,
*Lieutenant-Colonel and Chief Signal Officer,
Second Army Corps.*

OFFICE OF THE CHIEF SIGNAL OFFICER,
HEADQUARTERS SECOND ARMY CORPS,
Camp George Gordon Meade, Pennsylvania, October 3, 1898.

Gen. A. W. GREELY,
Chief Signal Officer, U. S. A., Washington, D. C.

SIR: I have the honor to submit to you the following narrative, as a report of the organization of the Eleventh Company, United States Volunteer Signal Corps. I was commissioned on May 20, 1898, captain in the Volunteer Signal Corps and qualified on June 1.

On June 9, 1898, by Special Order 135, A. G. O., Washington, D. C., paragraph 13, I was assigned to duty as recruiting officer for the Signal Corps at Newark, N. J. There being no medical officer available at Newark, I asked authority from the Surgeon-General of the Army to employ a civilian physician and was authorized to do so by telegraphic orders on June 11, 1898. By direction of the Chief Signal Officer, I was authorized to enlist 35 men, at least two-thirds of which number should be telegraph operators or electricians. I enlisted the first of these men on June 13. On June 25 I had secured the last man. I then requested authority to enlist three more men who had applied to me, and received the necessary authority. These men were sworn into the service on June 27. These 38 men were selected from over 125 applicants.

While other officers in the Signal Corps also assigned to recruiting duty secured a greater number of men in the same time, I have always felt that I have been repaid for the care in which I selected the men by the way in which they have performed the duties required of them.

I had obtained for use as a recruiting office a large hall and two adjoining rooms owned by Marcus L. Ward Post 88, G. A. R., which had been used by the Provisional First Signal Corps of New Jersey, of which I was then captain, as its armory and drill hall and where appliances for visual signaling were kept. Telegraphic instruments were set up and connected, and likewise telephone instruments, which were also taken apart and then reconstructed for the instruction of the recruits. Every applicant for enlistment, before being examined, was required to produce a letter of recommendation from either the Western Union or Postal Telegraph Company, or other reliable and well-known institution or firm, setting forth his qualifications and his ability, either as telegraph operator or electrician, and stating that they would be willing to employ him in their own establishment. This was done pursuant to instructions from the Chief Signal Officer, with the result that the men obtained were as carefully selected and came as well recommended as one usually takes into his own personal employ. This care brought fruit when, several weeks later, the men were required to construct and operate telegraph and telephone lines, which they did in a satisfactory manner, without unusual effort or friction.

On June 16, 1898, by Special Order 141, A. G. O., Washington, D. C., First Lieut. Hugh Haddow, jr., was ordered to report to me in person at Newark, N. J., for duty. Lieutenant Haddow was then first lieutenant in the Provisional First Signal Corps of New Jersey. While at Newark, and until the full quota had been recruited, as many of the men as desired were permitted to go to their homes for meals. Very few took advantage of this offer, and most of them received their meals at a restaurant in the vicinity of the recruiting station. The meals furnished were paid for by the Subsistence Department at the rate of 25 cents per meal, and were clean, whole-

some, and well cooked. The men were marched to the restaurant and back in two detachments, each in charge of an acting sergeant. A number of the men were also quartered by me nightly at an expenditure of 25 cents per night, which was paid by the Quartermaster's Department. Of the 38 men enlisted by me, 29 were either electricians or telegraph operators, a little more than half of this number being electricians. One also enlisted as a cook.

On June 28 I received telegraphic orders directing me to proceed with my detachment to Washington Barracks, D. C., in consequence of which I left Newark the following morning (29th) and arrived at my destination on the afternoon of the same day. The barracks being extremely crowded at that time and the weather being very warm, the second day after my arrival I drew tentage for my detachment and we went into camp, my organization being the only one that lived in tents at the barracks until my departure from there for Camp Alger, Va., on July 13, at which time I transferred my camp to Capt. Ambrose Higgins, and received from him in exchange an equal number of tents, he being enabled thereby to move into a camp already established. On July 8, 1898, First Lieut. Charles De Forest Chandler was assigned to duty with my company.

On July 10 First Lieut. Henry G. Opdycke, who had recruited 18 men at Albany, N. Y., reported at Washington Barracks with his detachment and was assigned with his men for duty with my company, which had been designated as the Eleventh Company, by order of the Chief Signal Officer. On July 13, Lieutenant Opdycke was transferred to Captain Lyman's Company; his men, however, remained with my company, which then had a total strength of 56 men. Of the men enlisted by Lieutenant Opdycke, 13 were telegraph operators, 1 stenographer, 1 photographer, and 3 electricians.

While at Washington Barracks the men were drilled daily in the use of visual signals, received some instructions in guard duty and other duties pertaining to the life of a soldier, and were taught how to ride and care for horses. They were uniformed and received their personal equipment, such as haversacks, canteens, knives, forks, spoons, meat cans, bed sacks, shelter-tent halves, blankets, and ponchos, and 25 carbines and 30 revolvers, which were distributed among the men, the noncommissioned officers receiving the revolvers.

July 11 I received orders to proceed with my company to Camp Alger, Va., which I did on July 13.

August 15, while at Camp Alger, Va., Second Lieuts. Carl Darnell and Byron B. Daggett, pursuant to Special Order 191, A. G. O., Washington, D. C., reported to me for duty, while I was acting chief signal officer of the Second Army Corps, and were by me assigned to duty with the Eleventh Company.

As signal equipments of every kind that might possibly be required for visual signaling, as well as for telegraphic and telephonic constructions, had been sent to the chief signal officer attached to the Second Army Corps at Camp Alger, Va., my company took with them no signal equipments from Washington Barracks, except two heliographs and some telescopes.

The equipment furnished us after we reported for duty with the Second Army Corps was certainly, both in quality and quantity, such as to enable the Signal Corps to maintain operations under all sorts of conditions. Three battery wagons were to be used as portable telegraph and telephone offices during time of action in the field, a wire reel wagon loaded with four-strand insulated wire, which can be laid upon the ground, over roads, and through streams, and communication over which would not even be interrupted by the passing of wagons over the same, field instruments to be operated in connection with this wire, all material and tools necessary for the construction and operation of military lines, and every kind of appliance for visual signaling, both day and night, from the now obsolete signal torch to the acetylene gas lamp of the latest model, and while this property formed a great bulk when concentrated in one place, by judicious distribution among detachments it can readily be moved from place to place to which the detachments may move.

Thirty-five horses were assigned to each company of the Signal Corps. This number is far in excess of the number of horses which the Signal Corps could use to advantage; fifteen or twenty horses at the most being enough for any one company. The care and attention required for the extra horses impairs the efficiency of the Signal Corps companies.

The only thing which was possibly lacking in our equipments was a wagon or truck suitable for the rapid transportation of lance poles used in the construction of the military lines. We used for this purpose an ordinary army wagon, and, being too short, the tail board had to be removed, with the result that whenever the wagon was hauled on an upgrade, the lance poles were certain to slide out of the rear end. The wire-reel wagon was faultily constructed to some extent, but these faults were readily overcome by changes made under my direction, an account of which is contained in separate report heretofore rendered by me. Some slight changes were also necessarily made by us in the fitting of the battery wagons. The necessary material

for establishing an incandescent electric-light system for 50 lamps was also a part of our equipment, the lights being put in the headquarters tents by the signal corps. Trusting I have not been too brief in the matter of this report, I have the honor to remain,

Very respectfully,

CARL F. HARTMANN,
Captain, Signal Corps, United States Volunteers,
and Acting Chief Signal Officer

WAR DEPARTMENT, SIGNAL OFFICE,
Jacksonville, Fla., August 25, 1898.

CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

SIR: In compliance with instructions from your office, I have the honor to make the following report upon the organization of the Second Company, United States Volunteer Signal Corps:

I was assigned to duty as recruiting officer for the Volunteer Signal Corps at Hartford, Conn., by S. O. 135, H. Q. A., June 9, 1898, and between June 9 and June 16, 1898, enlisted 26 men, many of them members of the Connecticut Signal Corps.

On June 17, 1898, in accordance with S. O. 141, H. Q. A., June 16, 1898, I proceeded to Fort Trumbull, Conn., to which post recruits had been sent each day as enlisted and started with detachment for Washington Barracks, D. C., at which post arrived on June 18.

Subsequently my company was filled to the maximum by assigning to it recruits enlisted at Washington Barracks by Captain Lamar, and at New York by Captain Ives, and at Brooklyn by Captain Leigh.

While at Washington Barracks the company was uniformed and equipped and instructed in the rudiments of signaling and military drill. The men were all armed with Colt .45-caliber pistols. The signal equipments consisted of the articles prescribed by your office for each company of the Signal Corps.

The company left Washington Barracks July 3, 1898, for Jacksonville, Fla., arriving on July 4, for service with the Seventh Army Corps; this in accordance with a letter from Adjutant-General of the Army, dated June 27, 1898.

The officers attached to the company are Capt. Howard A. Giddings, First Lieut. Samuel M. Butler, and Second Lieut. William Mitchell.

A roster * of the company, with complete data, is inclosed herewith.

Very respectfully, your obedient servant,

H. A. GIDDINGS,
Captain, United States Volunteer Signal Corps, Commanding Second Company.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE FOURTH COMPANY.

SIGNAL CORPS, UNITED STATES TROOPS IN PORTO RICO,
Ponce, Porto Rico, September 19, 1898.

Respectfully forwarded to the Chief Signal Officer, United States Army.

The Fourth Company was formed of men enlisted for the United States Volunteer Signal Corps from time to time at Camp George H. Thomas, Ga., during May and June, 1898, or of men transferred from regiments of volunteers to the United States Volunteer Signal Corps during those months. These men have been attached to the detachment of Signal Corps, United States Army, at Camp Thomas. Until July 11, 1898, those men (43) were assigned by order No. 6, Signal Corps, First Army Corps, to the Fourth Company to the command of Captain Hepburn. Subsequently assignments of men were made to the Fourth Company to fill it to the authorized complement. During their stay at Camp Thomas they were instructed and drilled in Signal Corps duties, signaling, field telegraph, etc., until their departure thence, July 23, 1898, for this island. Instructions and practice were also maintained when the men were not otherwise engaged on this island until departure on September 13, 1898, for the United States.

W. A. GLASSFORD,
Lieutenant-Colonel and Chief Signal Officer, United States Troops in Porto Rico.

* Omitted.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE TENTH COMPANY.

CAMP WHEELER,
Huntsville, Ala., August 23, 1898.

CHIEF SIGNAL OFFICE,
United States Army, Washington, D. C.

SIR: Replying to your favor of August 13, 1898, through Col. H. H. C. Dunwoody, would say that the following is the desired information:

Previous to my reaching Boston, Mass., the recruiting for the Signal Corps was in charge of Lieutenant Chase, at 37 Kneeland street, Boston, who had enlisted 5 telegraphers and 2 electricians. When I opened recruiting office at East Armory, these men were transferred to my detachment June 21, on which day I began enlistment which was completed on Saturday June 25, with 65 men, their qualifications being as follows: Twenty-nine telegraphers, 8 linemen, 3 laborers, 9 signalmen, 2 electrical engineers, 7 electricians, 4 stewards, 2 civil engineers, and 1 stereotyper.

On Monday morning, June 27, we were furnished with a canvas working uniform and campaign hat by the State of Massachusetts, and in the evening of the same date at 6.30, with Lieut. H. W. Sprague, left for Washington, arriving there and reporting to post commander at 4 p. m., June 28. We remained in barracks until July 11, furnishing all necessary details and drilling on marching maneuvers and signaling, wigwag, heliograph, and telegraphing. During this time the following changes were made: We lost 1 telegrapher by transfer to Washington District Company, also on same date by transfer, 9 men to the balloon detachment, 6 linemen, 1 telegrapher, 1 electrical engineer, and 1 laborer. On July 9 we lost by transfer, 1 telegrapher, and gained by same 1 signalman from the District Company.

We received a first-class Signal Corps outfit, including heliographs, flags, torches, telegraph instruments, tents, cooking utensils, and personal equipment for every man. On July 11 we gained by appointment First Lieut. Charles H. Martin and Second Lieut. Don A. Palmer, and Second Lieut. H. W. Sprague was promoted to first lieutenant. Accompanied by these officers and full quota of 55 men, we left Washington at 11.15 a. m. Monday, July 11, and arrived in Tampa, Fla., 8.20 p. m. July 12, remaining on board the train that night. The following morning we pitched camp behind the Tampa Bay Hotel, Capt. J. E. Brady commanding.

While here the men were drilled in signals at every opportunity. A supply of khaki uniforms and 60 hammocks were drawn anticipatory of the Cuban expedition. On July 19 we were joined by First Lieutenant Pellew, who remained with us until the 28th, when he left to join Captain Butler's detachment in Santiago. On July 23, having been furnished with fifteen days' traveling and forty-five days' field rations, we left Tampa for Port Tampa, leaving at 2.25 p. m., being loaded on board the U. S. transport *Port Victor* at 4.30 p. m. That night Private Corbin, telegrapher, was transferred to Lieutenant Wildman, pending a discharge for sickness. The same has since been granted, date unknown.

We remained in Port Tampa Harbor July 23, and pulled out at 11.30 a. m. July 24. On board the boat we furnished all necessary guards, and gave as much drilling as our cramped quarters would allow. This drilling, together with the setting-up exercises, was maintained during our entire stay on the transports. Arriving in Santiago Harbor July 27, we were informed that we would not be allowed to land, and we transferred entire company and stores to the *Seguranca*, United States transport No. 12, at 4 p. m. July 29. We left Santiago on this boat at 8.30 a. m. July 31, and arrived off Egmont Key 7.30 a. m. August 4. Transferred to *Comal*, United States transport No. 7, at 10 a. m. August 7.

Received orders that evening to send 25 men and 2 officers to Porto Rico. Pursuant to these orders, First Lieutenant Martin, Second Lieutenant Palmer, 5 first-class sergeants, 6 sergeants, 8 corporals, and 6 privates were detailed for the trip, and the following morning these, with apportionment of equipment and stores, were transferred to the *San Marcos*, United States transport No. 20. The remaining 29 men, including 2 sergeants, the detachment under command of First Lieut. H. W. Sprague, were transferred to the *Seguranca*, United States transport No. 12, and sailed that morning, August 8, for New York, where they arrived Friday evening, August 12, going into barracks at Governors Island Saturday morning, the 13th.

Wednesday, August 18, this detachment in charge of Sergt. H. S. Hathaway, leaving First Lieutenant Sprague sick in hospital and Sergt. William Schwab behind, left Jersey City and arrived in Huntsville, Ala., at 12.30 a. m. Friday, August 19, joining us at 9 a. m. same date. The Porto Rico detachment remained on board the *San Marcos*, United States transport No. 20, until the following Monday, August 15, when they were ordered to the fumigating station at Egmont Key, thence to Huntsville via Port Tampa. Additional rations were taken aboard the tug *Charles Foster* at Egmont Key, and the detachment reached Port Tampa at 5.30 p. m. Monday,

August 15, leaving there at 7.05 p. m. for Huntsville, at which point we arrived Wednesday 4.30 a. m., August 17. Encampment was made temporarily a quarter of a mile from headquarters the same date. We were joined by the other detachment Friday morning, August 19, and permanent camp established opposite headquarters on that date, Lieutenant-Colonel Strong commanding Signal Corps, Major-General Coppinger, commanding general.

Immediately upon our arrival here we were called upon to furnish construction men for telephone and telegraph lines from corps headquarters to the various regimental headquarters, and also to supply telegraphers and telephone men for operation same.

No effort has been spared by my officers or myself in endeavoring to recruit the company with the very best material obtainable, and every man was chosen because of his special fitness for some branch of the work.

Their former experience, together with the training which they have had while in service, will, in my opinion, make them a most valuable adjunct to the army corps to which they may be attached.

The following are the names of the officers attached to my command: First Lieut. Charles H. Martin, First Lieut. Henry W. Sprague, and Second Lieut. Don A. Palmer.

Very respectfully,

THOS. F. CLARK,

Captain Tenth Company, United States Volunteer Signal Corps.

REPORT ON ORGANIZATION AND EQUIPMENT OF THE FIFTEENTH COMPANY.

HEADQUARTERS FIFTEENTH COMPANY,
UNITED STATES VOLUNTEER SIGNAL CORPS,
Camp Wikoff, Montauk, N. Y., October 2, 1898.

CHIEF SIGNAL OFFICER,
United States Army, Washington, D. C.

SIR: I have the honor to submit the following report of the organization of my company of the Volunteer Signal Corps:

I was assigned on June 25 to the duty of recruiting, and for that purpose proceeded to Philadelphia, Pa. I was engaged on that duty at No. 1312 Filbert street up to and including July 7, on which date I was recalled and directed to proceed with recruits under my command to Washington Barracks, D. C.

I reported at Washington Barracks on the 8th of July with 24 men, and on the following day a detachment of 11 men, under Lieutenant Martin, reported to me, the latter having been recruited at Pittsburg, Pa. On July 11 I enlisted one man at Washington Barracks. Since then the under-noted alterations have taken place:

Transfers to my company, 1 man from Second United States Volunteer Signal Corps, 1 man from Sixteenth United States Volunteer Signal Corps, 1 man from Eleventh United States Volunteer Signal Corps, 1 man from Fourteenth United States Volunteer Signal Corps, 9 men from Sixth United States Volunteer Signal Corps. Transfers from my company, 1 man to Thirteenth Company United States Volunteer Signal Corps. Discharged, 1 man enlisted in Philadelphia.

On the 6th instant I was ordered to proceed to Montauk Point, and on the 8th instant my company was ordered to Montauk to report to me at that place; this was done, the company, consisting of 1 first lieutenant and 2 second lieutenants and 45 men, joining me here on the 9th of August.

I hereto attach a detailed list of the men showing first, qualifications; second, their previous training and vocations, and third, their place of enlistment.

During our stay at Washington Barracks our men were trained in military tactics, riding, and signal work. We practiced signals daily, averaging five hours per day. When we reported at Montauk all of our men were proficient in flag signaling and heliograph signaling, and many good horsemen. They were assigned to their various duties according to their qualifications.

Respectfully,

AMBROSE HIGGINS,
Captain Fifteenth Company, United States Volunteer Signal Corps.

REPORT OF THE ORGANIZATION AND EQUIPMENT OF THE THIRTEENTH COMPANY.

WASHINGTON BARRACKS, D. C., *September 1, 1898.*The CHIEF SIGNAL OFFICER,
Washington, D. C.

SIR: In compliance with instructions from the Chief Signal Officer, dated August 13, 1898, I have the honor to submit the following report of the organization, equipment, and personnel of Thirteenth Company, United States Volunteer Signal Corps.

The nucleus of the company was 30 men, recruited at Columbus, Ohio, between the dates of June 25 and July 6, 1898, by George R. Gyger, captain, United States Volunteer Signal Corps, in pursuance of Special Orders, No. 140, A. G. O., dated Washington, June 15, 1898. Four of these men had been members of the signal corps of the Ohio National Guard, and were well up in everything pertaining to the service, 15 were telegraph operators, 7 were electricians, 3 were linemen, 3 were students, and 1 was a photographer.

This detachment arrived at Washington Barracks, D. C., July 9, 1898, at the same time with a detachment of 12 men recruited at Fort Snelling by Lieutenant Palmer, United States Volunteer Signal Corps. These men were assigned to the Thirteenth Company, 8 being telegraphers and 4 linemen. Thirteen men, recruited by Lieutenant Colt, United States Volunteer Signal Corps, at Kansas City, Mo., were shortly afterwards assigned to this company. Of this number 6 were operators, 2 were electricians, 3 were linemen, and 1 was a photographer. This completed the quota of 55 enlisted men. Since arriving at the barracks, by verbal instructions from the Chief Signal Officer, 2 men, H. H. West, a newspaper correspondent, and Louis Leckert, a cook, have been enlisted. Several changes have since been made by the transfer of men from other companies or detachments to this company, and also from this company to other companies. At this time the membership of the Thirteenth Company consisted of 5 officers, viz, Capt. George R. Gyger, of Alliance, Ohio (commanding company); Capt. A. W. Yancey, of Memphis, Tenn. (temporarily assigned); First Lieut. C. M. Duffy, of Guthrie, Ky.; First Lieut. P. J. Reddy, of Evanston, Wyo.; Second Lieut. Gustav Hirsch, of Columbus, Ohio; 2 first class sergeants, 4 sergeants, 10 corporals, and 39 privates, or a total of 55 enlisted men.

The company is armed with 55 Springfield carbines (caliber .45), with web cartridge belts. It has 60 pieces shelter tents, 20 common tents, 5 wall tents, 1 Hunt cooking outfit, with a complete outfit of haversacks, canteens, and mess kits for field service.

The signal outfit consists of 2 acetylene gas flash-light outfits, 4 heliographs, complete, and 6 flag outfits; these are all new, but have been used for drill.

There are but 4 men in the company who are unable to send and receive messages by flag or heliograph; these are the post baker, company cook, and 2 men who have been kept on special duty.

Since the organization of the company it has had an unusual amount of fatigue duty to perform at the post, having to police the entire reservation from the barracks to the gate, which required a detail of one-fifth of the entire company every day, except Sunday. This was in addition to the ordinary guard and fatigue duty required of a company in connection with its own quarters and stable. We have lately been relieved from this duty, which is now being done by the artillery troops stationed at the post, and the company will now have more time to devote to signal work.

On August 21, 1898, Corpl. T. C. Jones, with a detachment of 14 men, was sent to Montauk Point, Long Island, to assist in the erection of an electric-light plant at Camp Wikoff; three of these men, Privates Steel, Brooks, and Finney, have volunteered to go to Cuba and have returned to Washington Barracks. The others are still at Montauk.

In addition to the work done on the lines and instruments at Washington Barracks this company has furnished a detail to inspect and repair the telephone line between Anacostia Bridge and Fort Washington; also to construct and maintain a telephone system at Fort Meyer. The fort was also connected by wire with the Western Union Telegraph cable at the west end of the Aqueduct Bridge at Washington. Special reports of all this work have been made to your office.

Five telegraphers are now on duty at the War Department. This detail was made to take the place of civilian operators who were on a strike.

The health of the company has been unusually good. There has been but little sickness among the members; none of a serious nature.

The company is now quartered in the south dormitory at Washington Barracks, and have all the modern conveniences in kitchen, bath, and quarters.

There has been but little complaint as to the quality and quantity of rations furnished us, although for the first few weeks there was a shortage.

The company is in excellent shape for field service.

Respectfully, your obedient servant,

GEO. R. GYGER,
Captain, United States Volunteer Signal Corps.

**HEADQUARTERS INDEPENDENT DIVISION, EIGHTH ARMY CORPS,
OFFICE SIGNAL OFFICER.**

San Francisco, Cal., July 16, 1898.

The CHIEF SIGNAL OFFICER,
Washington, D. C.

SIR: I have the honor to submit the trimonthly report of operations up to and including July 10, 1898.

Up to the time of the arrival of Sergeant Andreae's detachment from Washington there were 5 regulars and 18 volunteers in camp. Sergeant Andreae's detachment of 1 regular and 22 volunteers, the arrival of 1 recruit from Raleigh, N. C., the same day, the enlistment of 1 man, and the completion of the transfer of another, bring the present strength of the detachment up to 6 regulars and 43 volunteers. Much annoyance and delay in making up records has been caused by recruits arriving without proper papers, and in some cases with none at all. It may be impossible to complete all records before embarking.

The drills are being held four hours daily; when practicable from one to two hours being in setting-up drills, and the remaining time being utilized in war flag, and heliograph practice. Difficulty is experienced in heliograph practice because of foggy and cloudy weather.

The health of the men is good, only one case of sickness having developed; this, the Washington detachment, the man suffering from a disability which, the surgeon thinks, should secure his discharge.

The behavior of the men has been excellent, with the exception of two who were charged with drunkenness and who were sent before a garrison court.

The operators have been given little opportunity to practice owing to the unsettled state of the camp. Steps have been taken to supply the necessary facilities.

Delay in filling requisitions has given trouble, and no ordnance supplies have been received beyond a partial equipment for messing. The arms and other equipment will probably be received by Monday, July 11, 1898. It was hoped that the company could be organized and equipped in time to go on the *Peru* or the *Puebla*, which sailed about July 13, 1898, but the lateness of the arrival of Lieutenant Tilly's recruits (telegram states that they will arrive July 12, 1898) and the delay in getting equipments will probably render it impossible to go until the next transports sail. We intended to send transports out as fast as they can be gotten ready. The time of sailing of the other transports is indefinite.

Captain Martin has offered to assist in drilling in the camp, while Lieutenant Gordon is constantly with the men. Lieutenant Lawrence, upon the completion of recruiting duties, has been assisting me. First Lieut. F. H. Bailey reported for duty July 8, in accordance with telegraphic instructions; he was given a few days in which to complete his equipment. Second Lieut. William O. Bailey has purchased most of the nontechnical supplies required for signaling and telegraphic equipment from the funds allotted for that purpose. The technical equipments from the Signal Corps have not yet arrived.

In accordance with instructions left me by Major Thompson I shall leave Lieut. William O. Bailey, First Class Sergeants Davis and Horne, and Sergeant de Beaumont to clear up property matters and to follow on a later transport. Sergeant Davis is in charge of the storeroom; Sergeant Horne is acting as first sergeant; and Sergeant de Beaumont is in charge of the records and returns of the office. As early as practicable recommendations for appointment and promotion of noncommissioned officers will be made. As yet the short time permitted for observing the men will make the value of recommendations somewhat uncertain.

Major Thompson requested me to invite your attention to the complications which may arise regarding the enlistment of many of the men; some are for two years, and some are for "during the existing war," according to law and the practice in enlisting here.

Inclosed is trimonthly report for the first third of July, 1898.

Very respectfully, your obedient servant,

EDGAR RUSSEL,
Captain, Volunteer Signal Corps.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE SIXTEENTH COMPANY.

CAMP GEORGE H. THOMAS,
Maunga Park, Ga., August 18, 1898.

The CHIEF SIGNAL OFFICER,
Washington,

SIR: In response to yours of July 13, 1898, I have the honor to inform you that my commission as captain is dated June 13, 1898, and of the 5th ranking same date you name: St. Louis, Mo., June 27, 1898.

SIR: In response to yours of July 13, 1898, and of the 5th ranking same date you name: St. Louis, Mo., June 27, 1898. I qualified at St. Louis, Mo., June 27, 1898.

William E. Davies's commission as second lieutenant is dated June 4, 1898, to rank May 20, 1898, and of the 18 ranking same date you name him seventh upon roster July 5, 1898. He qualified at Butte, Mont., June 23, 1898.

By S. O. 152, A. G. O., my first assignment was made June 29, 1898, as recruiting officer, St. Louis, Mo., and in accordance with S. O. 159, A. G. O., Second Lieutenant Davies reported to me for duty there July 10, 1898.

Part of recruiting instructions were to notify about 60 men at various points in Missouri and Nebraska, who had made application to Washington, that enlistment at St. Louis was their opportunity, although but 2 responded for examination and 1 of them was rejected; giving all a fair chance after notice, involved delay. From July 6 to 12, inclusive, I recruited 25 men, the maximum permitted at St. Louis.

Upon receipt of S. O. 161, A. G. O., dated July 11, 1898, ordering myself, Second Lieutenant Davies, and recruits to Washington Barracks, District of Columbia. I closed recruiting station, left St. Louis with command July 13, and reported at Washington Barracks July 15, 1898, to Capt. George R. Gyger for duty, and to Col. H. H. C. Dunwoody as to recruiting service.

Of the 30 men recruited at Kansas City, Mo., by Second Lieut. W. W. Colt, after Lieutenant Colt and 11 men had been taken by Captain Gyger for the Thirteenth Company, the remaining 19 were transferred to my command July 15, 1898.

Having no noncommissioned officers, and need of one being imperative, I appointed Charles Sherman Reber acting first-class sergeant July 15, 1898, in accordance with orders from Capt. George R. Gyger, commanding.

Gained July 17, 1898, Corp. George E. Reed, coming from Company K, Sixth Massachusetts Volunteer Infantry, in accordance with S. O. 146, A. G. O., June 22, 1898. My command having been constituted the Sixteenth Company, and I named its commander, I recommended, in addition to Reed, and your order No. 9, July 21, 1898, appointed the following noncommissioned officers: First-class Sergt. Charles Sherman Reber; Sergts. Robt. T. Junkin, Howard H. Craig, Charles O. Willette, Charles A. Smith, Thomas Z. Franklin, and Myron C. Gould; and Corps. James J. Grady, Alphonse M. McGerry, Ownby F. Hocker, William D. Duncan, Lynn P. Hale, Louis C. Witt, and Eugene F. Kent; these to be subject to revision, and the remainder to be recommended after further rivalry and varied duties had proven comparative merit.

Changes at Washington Barracks involved: Gain, William C. Harrington, Harry Leonard Thomas, and Henry B. Smith, by transfer from other companies; Arthur W. Huse and Joseph W. Porter, recruits in volunteer corps ordered to Washington Barracks and assigned to Sixteenth Company; and Harry H. Davis, Prentice B. Hill, and Bernhardt Wiemeier, recruits for regular corps, temporarily assigned to Sixteenth Company volunteers. Loss, Michael P. Kernan, Harry Leonard Thomas, and Ralph J. Day, by transfer to other companies, which left me 50 enlisted men, "all for duty," upon leaving there. Second Lieut. Merchant H. Baldwin was attached to the Sixteenth Company one day, but then reassigned to the Fourteenth Company.

When advised, on the evening of August 30, 1898, Sixteenth Company would be ordered here, I completed vaccination, supplying clothing, signal equipments, and ordnance, also payment of the company, and left at 11.15 a. m., August 5, 1898, with orders to report to Maj. Gen. J. C. Breckinridge, commanding Camp George H. Thomas, Chickamauga Park, Ga., where I arrived and reported at 9 a. m., August 6, 1898. I also reported to Lieut. Col. George O. Squier, commanding Third and Twelfth companies, whose force I relieved, taking charge of telegraph on date of arrival and all else the following day, so enabling them to start for Newport News the 8th instant. In accordance with the spirit of instructions, that they should leave with me men, animals, and equipments unfit for a Porto Rico campaign, Captain Lyman transferred from the Twelfth Company to the Sixteenth Company Cook Joseph T. Terrell, an epileptic; and Captain Leigh transferred from the Third Company to Sixteenth Company Keene Ryan, having kidney disease and nervous prostration; Joseph Percy Conklin, suffering effects of partial sunstroke; George E. Evans, in bad health; and William H. Gallagher, an incorrigible, worthless vagabond. Of these the discharge board has recommended the discharge, for causes not in line of duty, of Keene Ryan and Joseph F. Terrell, both having their respective diseases before enlistment. Conklin remains in hospital awaiting further observation, and I shall ask General Breckinridge to secure a summary and dishonorable discharge for Gallagher. Sergt. Robert Emmet Brennan, of Third Company, guilty of insubordination with Third Company, and absent without leave when that company left, has been ordered to the Sixteenth Company; expects reduction to private by Captain Leigh, and wishes that punishment as final, and his transfer to the Sixteenth Company. He is capable and behaving well, and I am willing to accept him as a private.

Exclusive of the last 5 named, Sixteenth Company comprises: Telegraphers, 26; electricians, 4; lawyer, 1; stenographer, 1; linemen, 10; surveyor, 1; editor, 1; business, 6; balloonist, 1; making a total of 51.

Variation from vocations on enlistment papers are truthful corrections based on experience. My men are a good lot, made rapid progress in drill and signaling at

Washington Barracks, handled telegraph and telephone well, are practicing both now, are willing campaigners, and have won compliments upon inspection and reviews. I judge this to be such a report as you invite.

Most respectfully submitted.

SAMUEL S. SAMPLE,

Captain, United States Volunteer Signal Corps, Commanding Sixteenth Company.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE SEVENTH COMPANY.

SPRINGFIELD, ILL., September 13, 1898.

H. H. C. DUNWOODY,

Colonel, and Assistant Chief Signal Officer.

SIR: In accordance with instructions contained in your circular letter under date of August 12, 1898, I have the honor to report as follows:

The Seventh Company, United States Volunteer Signal Corps, was recruited in Chicago and Springfield, Ill., between June 10 and June 28, 1898.

The Springfield detachment was ordered to Washington Barracks, District of Columbia, June 24, by telegraph, and started same date. The Chicago detachment reached Washington, D. C., July 1, 1898, and was consolidated with the Springfield detachment, which was then known as the Seventh Company, as per Order No. 1, War Department, Signal Office, dated June 30, 1898.

On July 8, 1898, proceeded to Chickamauga Park, Ga., pursuant to A. G. O. dated July 1, 1898 (order shows no number). Reported as per order to Maj. W. A. Clifford, chief signal officer First Army Corps, and thereafter became a part of his command.

No signal equipments were received by this company, and they used the various equipments from the central storage warehouse of the chief signal officer First Army Corps. Constant drilling was indulged in at Washington Barracks, and a good degree of efficiency attained.

Of the 55 men of the Seventh Company, 51 were expert telegraph operators, 2 were cooks, 1 was a lineman, and 1 an expert telephone inspector. They had largely been employed on the board of trade and in the main office of the Western Union Telegraph Company in Chicago, while a few came from the Postal Company in that city. Some 8 or 10 were from the various railroads throughout the State.

The noncommissioned officers, as a rule, were selected from the members of the Signal Corps, Illinois National Guard, and the splendid reputation enjoyed by this company during the war was largely due to the high state of proficiency to which these national guardsmen had been brought through the indefatigable efforts of the former chief signal officer of the State, Capt. W. J. Lloyd.

The high grade of intelligence which characterized the Signal Corps membership was not lacking in the Seventh Company, and the fact that we lost not a man special volumes for their ability and disposition to take proper care of themselves in the matter of health conditions.

They were armed with 30 carbines and 25 revolvers, and I am convinced that the proposition of arming the signal companies with carbines was highly essential to safe operations in the enemy's country.

The company was officered as follows: Capt. John B. Inman, commanding; Capt. John W. McConnell, First Lieut. R. O. Rickard, First Lieut. Charles O. Clark, Second Lieut. Meldrum Gray.

Respectfully submitted.

JOHN B. INMAN,

Captain, Commanding Seventh Company United States Volunteer Signal Corps.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE SIXTH COMPANY.

CAMP MEADE, PA., September 4, 1898.

Gen. A. W. GREELY,

Chief Signal Officer, U. S. A., Washington, D. C.

SIR: In compliance with your instructions, I herewith submit a brief history of the Sixth Company, United States Volunteer Signal Corps.

The company was organized at Camp Alger, Va., by Maj. (now Lieut. Col.) R. P. Strong, chief signal officer Second Army Corps, by transferring enlisted men from the line of the Army. The headquarters of the company is at Camp Alger, Va., on June 6, 1898. On June 8, Noble F. Pott Illinois Infantry was attached. On the

9th, 10th, and 12th, several privates were attached. On the 19th the Chillicothe, Ohio, Signal Corps detachment of the Seventh Ohio Volunteer Infantry was attached, 13 men in all.

On the 15th, Second Lieut. B. F. Lenoir was attached to the company; July 4, Capt. Charles S. Conner, and Second Lieut. Frank P. Tate were assigned to the company and reported for duty. On July 7, Second Lieutenant Tate was promoted to be first lieutenant. On July 9, Second Lieutenant Lenoir was transferred to the Washington Barracks by order of the War Department.

The company was recruited up to 65 men on July 18. Lieutenant Tate was detailed as property officer of the corps July 9. On August 6, 9 men were transferred to Captain Higgins's company at Washington Barracks.

The Sixth Company built the entire telephone and telegraph systems at Camp Alger, Va. It was ordered to Camp Meade, Pa., August 16, arriving at that point August 17, and at this point has built and completed the entire telephone and telegraph system at Camp Meade.

The company has a fine lot of young men now. August 27, 25 men asked for their discharges. They were recommended. Twenty-five more men were at once transferred from the line.

On August 3, First Lieut. H. D. Coe was assigned to the company. On August 9, Second Lieut. E. E. Bawsell was assigned to the company.

Respectfully,

C. S. CONNER,

Captain Sixth Company, United States Volunteer Signal Corps.

REPORT ON ORGANIZATION OF TWELFTH COMPANY.

TWELFTH SIGNAL COMPANY,

Camp Greely, Newport News, Va., August 18, 1898.

The CHIEF SIGNAL OFFICER,

War Department, Washington, D. C.

(Through military channels.)

SIR: I have the honor, in compliance with orders from Col. H. H. C. Dunwoody, Assistant Chief Signal Officer, under date of August 12, 1898, to report upon the organization of my company, the qualification of the men, changes in the command since organization at the central station, and service rendered, etc.

My commission as captain was issued June 10, 1898, with rank from May 20, 1898. On June 13, in compliance with orders from Colonel Dunwoody, I opened a recruiting office in the armory of Company A, Fifty-first Iowa, at Des Moines, Iowa, and within twelve days had selected the 50 men required, from at least 200 applicants.

To my ten years' service in the National Guard, reading in Myer and other signal works, and the aid of Dr. George M. Chappel, forecast official at Des Moines, formerly a sergeant in the Signal Corps, I attribute what success I had in securing the right kind of men for the service.

The following list will show the qualifications of these men: Operators, 24; electricians, 14; clerks, 3; stenographer, 1; draftsman, 1; soldier, 1; cooks, 2; blacksmiths, 2; photographer, 1; veterinarian, 1; barber, 1. The operators are all of the best class. A "pony line" was used in the armory to test the applicants for enlistment, and only the best were enlisted. The electricians are of what might be termed three grades: First, graduates of colleges who have made a specialty of electricity and electrical engineering; second, practical linemen who can do anything from putting in a telephone switch board to splicing a telephone cable of 300 wires and testing it out; third, electricians who have made a specialty of heavy currents, dynamos, electric motors, etc. Half the linemen were enlisted while at work splicing a 204-wire telephone cable in front of the recruiting office.

The detachment in two separate parties started for Washington Barracks, District of Columbia, June 25, in compliance with orders A. G. O., June 23. They arrived at their destination June 27, and the work of equipment and organization was at once taken up. The men were uniformed with blue, but were unable to get stable or fatigue clothing. They were armed half with the revolver and half with the carbine, caliber .45. No lieutenants were assigned until July 14, when First Lieut. Henry G. Opdycke, of Jersey City, N. J., was assigned. Other lieutenants were assigned as follows: First Lieut. R. B. Ogelsbee, of Indiana, July 21; Second Lieut. W. C. Cannon, of the District of Columbia, August 6; First Lieut. Charles B. Rogan, jr., of Tennessee, August 13.

At Washington Barracks I drew from Capt. A. W. Yancey, quartermaster and ordnance officer, a complete mess outfit for the men, including Buzzacott's stove, meat cans, knives, forks, and spoons. Sufficient canvas to shelter the men, four in a tent, was drawn. From the disbursing officer a complete signal equipment was secured,

including torches, signal lanterns, heliographs, telegraph instruments, etc. Upon arrival at Camp Thomas, Chickamauga Park, Ga., July 23, additional equipments were drawn, until when the command was ordered to Newport News, Va., August 8, as the advance party of Major-General Wade's Porto Rico expedition, which, not sail, I had, besides the property above enumerated, 24 mules, 3 signal wagons, 3 army wagons, 12 horses and equipments, and sufficient wire, etc., to be the command in the field for some time.

While I may not be called upon to do so, yet I can not refrain at this time from expressing my appreciation of the many kindnesses of the officers of your office and the quartermaster and ordnance officer at Camp Thomas in aiding me in securing a full equipment.

While at the central station the men were drilled from six to eight hours daily in the school of the soldier, company movements, and signaling with the flag, wire, and heliograph. Much progress was made. Since then the drills have continued at Camp Thomas and here.

The men have shown a marked versatility. Sergt. James Austin Mortland was appointed photographer for the provisional division intended for Porto Rico by Major-General Wade. He is doing excellent work. First Class Private Emerson A. Paine, a practicing veterinary when enlisted, was made battalion veterinarian. Phillip Vander Myden was placed in charge of the blacksmith force. The stenographer has taken the records of boards of survey, the draftsman made maps of camps and practice marches, while mechanics have burned charcoal for filters, made bridges across streams at Camp Thomas from wire cables, and shown a desire to make a success of any task, no matter how new or novel.

Instructions in building telephone and telegraph lines have been unnecessary in this command. The men thoroughly understood this business when enlisted. At Camp Thomas linemen from this company reconstructed the 13 miles of line after Major Glassford had left for the front, put in a new switch board, and made the line more serviceable.

At this place a detail of 8 men in charge of Lieutenant Opdycke has reorganized and repaired the telephone lines at Fort Monroe, which gave much trouble for months until the arrival of the signalmen. Plans for constructing new lines and overhauling special lines used in connection with the batteries are now under consideration.

On August 13 a detachment of 20 men, under command of a first lieutenant, was divided between Captain Leigh's Third Company and myself, Lieutenant Rogan and 9 men coming to the Twelfth Company. These men were enlisted by Lieutenant Rogan, and are divided as follows: Operators, 4; civil engineer, 1; farmers, 2; electricians, 2. These men are the pick of the 20.

First Class Private Russell is at work upon an electric shutter for the heliograph ideas for which were furnished by myself. Should it be a success your office will be notified.

A prize has been offered by the company commander to the sergeant having the best drilled signal squad, which has awakened much interest.

I take pleasure in informing you that the discipline of this company has been most excellent. The esprit de corps has been pronounced and the men individually filled with a desire to learn their duties and make this branch of the service a success.

While this company, like all other troops from Iowa, has not had a chance to see active service, I feel confident that it is not because of any lack of ability on the part of the men.

Most respectfully, your obedient servant,

FRANK E. LYMAN, Jr.,

Captain, United States Volunteer Signal Corps, Commanding Twelfth Company.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE THIRD COMPANY

To the CHIEF SIGNAL OFFICER, *United States Army.*

SIR: I have the honor to submit the following narrative report regarding the Third Company, United States Volunteer Signal Corps:

This company was organized from a detachment of 61 men enlisted by me in Brooklyn, N. Y., from the 13th to the 22d of June, 1898.

A recruiting station was established in the armory of the Second Signal Corps, N. G. N. Y. The men recruited were of a high order of intelligence and had, to a great degree, that technical ability needed by the Signal Corps. Seventeen members of the Second Signal Corps of New York were proficient in visual signaling, besides having a certain knowledge of the law requiring two-thirds of the operators or electricians was carefully observed.

Of the 61 enlisted, 46 were telegraph operators.

raphers or electricians, 12 had previous military service in the Army or the National Guard, 2 were cooks, and 1 was a hostler.

Capt. Edward B. Ives, recruiting officer for New York City, enlisted many men at the same location as I did. Indeed, the recruiting in New York and Brooklyn progressed at the same time by an arrangement between Captain Ives and myself.

The patriotism of telegraph operators was warmly seconded by the officials of the telegraph companies of Greater New York, who, upon advice from the recruiting officers that any of their employees had enlisted, furnished a certificate of his ability and character and promised to employ such men when they returned from the war. Many of the telegraph operators who enlisted were men who at the time were filling the most responsible of positions in these companies, and who were being paid the highest of salaries obtainable for such skill.

The detachment remained in Brooklyn until June 25, 1898, when it proceeded to Washington Barracks, D. C. While in Brooklyn, drills were given daily in the elementary part of the Cavalry Drill Regulations and much progress was made by the men in learning the Myer code and becoming familiar with the different methods of signaling.

This was possible because the men were quartered in a signal corps armory containing equipment which was loaned to the recruits that they might readily obtain such information as they needed.

Although attached to this Brooklyn Signal Corps, I am constrained to say that while the men remained in Brooklyn the fact that they were quartered in this armory was an advantage in many ways. Apparatus for instruction was ready to be used, cots and blankets were available so that the convenience and comfort of all concerned was considerably conserved.

Arriving in Washington, D. C., the detachment became designated as the Third Company. The issue of arms, uniforms, and equipments was quickly made. The arm issued was the pistol, and, in view of my experience of the next few months, I have been confirmed in my idea that any other weapon than the pistol would have been a disadvantage to the signalman.

The equipment received by the company was very complete, including everything except transportation and the supplies necessary for the construction of electric lines. The drills commenced in Brooklyn were continued while in Washington, and the men became quickly accurate and rapid in the use of the Myer code by motion and flash.

The company proceeded to Camp Thomas, Chickamanga Park, Georgia, arriving at that place on July 8, 1898, reporting to Lieutenant-Colonel Squier, the chief signal officer of the Third Army Corps. Camp was established near the army corps headquarters, and the company, with the Twelfth Company, formed the signal corps battalion. The work of the battalion was the operating and the repair of the telegraph and telephone lines in Camp Thomas, besides the continuing of such instructions as was necessary for the men. Such work as the company had to do seemed to be performed satisfactorily. While at this place the equipment of the company was added to by sufficient transportation, horses, etc.

On August 8, 1898, the company, with the battalion, proceeded to Newport News, Va., for the purpose of embarking for Porto Rico. Upon arriving at Newport News, however, the orders were countermanded and the battalion established Camp Greely at that place. The company left the battalion at Camp Greely on August 21, 1898, and proceeded to New York City, embarking there for Santiago, where it arrived August 29, 1898, relieving the Signal Corps battalion of the Fifth Army Corps. The duty required in Santiago was the construction and operation of telephone and telegraph lines in the city and province.

With the exception of a few telephone stations, such communication as the Department of Santiago required had to be established. Many additional telephones were immediately placed in and about the city and the work of connecting the different cities with telegraph lines commenced. The slowness with which the supplies of the company were unloaded from the transport delayed considerably the work to be done.

By an arrangement with the superintendent of the railroad company running to San Luis, telegraph communication was established from Santiago to San Luis over the railroad line and a new line constructed from San Luis to Palma Seriana. This line was working nicely on September 9, 1898, the date at which this report is ended. The company, since the time of its being recruited in June, had changed considerably. Gains in number had been made by the joining by transfer of men from a detachment recruited in the State of Tennessee and by men from the Twelfth Company. Losses, however, by transfer to other companies had brought the membership down to 37 men. This large loss of men was because the company had been ordered on two occasions to go on foreign duty, and men who were unfit by their physical condition, or who were disinclined for foreign service, were at each time

ordered to be transferred to other companies. The health of the company was very good until the company reached Santiago. In Camp Thomas many men suffered from attacks of bowel troubles, but only one case of typhoid fever developed. The absence of any serious illness at Camp Thomas was the result, I think, of the rigid enforcement by Colonel Squier of those rules of cleanliness through which good health can only be expected. The health at Newport News was very good, owing to the splendid opportunities for sea bathing which that place afforded. The men were encouraged to bathe and seemed to enjoy the facilities with much benefit to themselves.

In Santiago many cases of illness—typhoid, malaria, and yellow fever—attacked the officers and men, notwithstanding that great care was observed in the diet and exposure of the company, and the cleanliness of the several stations occupied.

There have been assigned to the company at various times Capt. Edward T. W. field, First Lieuts. Alvar G. Thompson, William Jarvie, jr., and Charles B. Rogan, and Second Lieuts. Francis Creighton and Henry C. Baldwin. All of these have been enthusiastic and conscientious in the performance of their duties.

Very respectfully,

FREDERICK T. LEIGH,
Captain, United States Volunteer Signal Corps.

INCLOSURE C.

REPORT ON THE ORGANIZATION AND EQUIPMENT OF THE VOLUNTEER SIGNAL CORPS

List of Signal Corps property drawn for the following companies of the Volunteer Signal Corps.

	No. 2.	No. 5.	Nos. 6 and 11.	No. 10.	No. 12.	No. 14.	No. 15.	No. 16. N.
Flag, international code, set	1							
Flags, signal, complete	136	80	24	36	52	42	12	30
Typewriter	1	1	2	1	1	1	1	1
Keys, telegraph	12	6	6	4		6	25	
Sounder, main line	12	6	4	4			25	
Relay	1		2	1	4	6	25	
Switch board, ten drops	2		2		1			
Torches, complete	24	16	4	8	12		12	12
Glasses, field, complete	43	8	4	8	6	8	6	6
Glass, "Porro prism," complete	1	1		1	2	1	1	1
Lanterns, signal, aluminum	18	2						
Wagon, wire, 6 reels	1		1					
Wagon, battery (4 tables)	1		1				1	
Wagon, battery (2 tables)	2		1					
Wire, stranded steel, miles	10							
Wire, insulated, miles							2	
Wire, silicon bronze, miles	3							
Battery, cells	50				50		98	
Heliographs, complete		8	8		6	4	6	4
Telescopes, complete		4	2		4		6	6
Telephones, complete		18	19		8		10	4
Stove, cooking, field								
Tents								
Bicycle		1	4					
Paper, telegraph, pounds		50						
Wire, telegraph, miles			30		30		30	
Lanterns, acetylene		2	2		2			
Kits, telegraph and telephone			2				2	
Wagon and harness							1	

APPENDIX 3.

REPORT OF COL. JAMES ALLEN, CHIEF SIGNAL OFFICER, ARMY OF PORTO RICO, ON THE OPERATIONS OF THE SIGNAL CORPS ON THE SOUTH COAST OF CUBA AND IN PORTO RICO, WITH SUPPLEMENTAL REPORT BY LIEUT. COL. SAMUEL REBER, UNITED STATES VOLUNTEER SIGNAL CORPS.

HEADQUARTERS OF THE ARMY IN THE FIELD,
Ponce, Porto Rico, September 1, 1898.

The CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

SIR: I have the honor to report that in compliance with telegraphic order, I left Governors Island, N. Y., April 23, 1898, and reported to the Major-General Commanding the Army on the 24th, and, having received his verbal instruction, proceeded the same day to Key West, Fla., where I arrived April 26, and took charge of the cable and telegraph offices.

Before leaving New York a ship had been chartered and equipped as a cable ship for the purpose of establishing communication between Key West and the base of operations of the army in Cuba, which, at that time, it was supposed would be established on the northern coast of Cuba in the vicinity of Havana.

Arrangements were made by which confidential information could be obtained from Cuba. This information, obtained from various sources, was forwarded to the Major-General Commanding, or directly to the Departments interested.

On the morning of May 19 the Spanish fleet under Admiral Cervera was located at Santiago de Cuba. Its presence was at once telegraphed to the Chief Signal Officer of the Army, Washington, and reported in person to the senior naval officer at Key West.

The arrival of the Spanish fleet at Santiago having changed the plan of campaign, I was directed to proceed to that point and destroy the cables landing at Santiago and Guantanamo.

I left Key West on the S. S. *Adria* on the morning of May 29, under convoy of the U. S. S. *Dolphin*, arriving at Santiago on the afternoon of June 1.

Commenced dragging for the cable on the morning of June 2, being cautioned by the naval officer in command that there were "hot batteries," having range of 5 miles, on each side of the entrance. The water at that distance from the shore being too deep to hope for success, and having instructions to keep, if possible, within the 3-mile limit, we were compelled to work within range of the guns.

Late in the afternoon a cable on direct bearing from Santiago to east end of the Island of Jamaica was hooked in 900 fathoms of water.

As we were quite near the shore and unable to move, if fired upon by the batteries or attacked by torpedo boats, the signal "Help wanted" was set just before dusk. The *Dolphin*, Captain Lyon, immediately responded, and gave us some men to assist in getting up the cable. The *Texas*, Captain Philip, also came up at once and took position between the *Adria* and the batteries.

About 3 o'clock a. m., June 3, the S. S. *Merrimac* was sunk in the entrance to the harbor.

Shortly after daylight as we were going in position to drag, the *Adria* was fired at from shore battery. Later in the day the *Oregon* and *Texas* were sent in to protect the *Adria*. They both cleared for action, moved in close to shore, and the work was continued.

June 4.—Dragged from daylight until about 1 p. m., when I went aboard the flagship to consult with the admiral. As he informed me he was going in with the entire fleet to make a demonstration and develop the batteries, no further work was done during the day.

June 5.—Spanish torpedo boats were at entrance to harbor all the morning. About 2 p. m. one of them came out so far that Captain Philip of the *Texas* came to our relief. The torpedo boats withdrew and work was continued under the protection of the *Texas*. Caught a cable about 6 p. m. in 1,044 fathoms of water. Captain Philip sent a detail of sailors to assist, and about 9 p. m. the bight was brought on board and about 20 feet cut out and the ends dropped overboard.

June 6.—The bombardment of the batteries begun by the fleet about 7 a. m., and no work was done during the day. During the bombardment a number of shells came over the *Adria*, with the unfortunate result that the next morning the crew refused to do further work, on the ground that the *Adria* was a neutral ship and that their Government would not protect them in cutting international cables.

June 8.—Started for Mole St. Nicholas at 11 p. m. on the U. S. S. *Yankee*, Captain Brownson, with dispatches for the Major-General Commanding and to arrange with French Cable Company for instruments to open an office at Guantanamo.

Returned to Santiago June 10.

June 11.—Started for Mole St. Nicholas on U. S. S. *St. Louis*, Captain Goodrich. The *Adria* was conveyed to Guantanamo. Returned to Guantanamo with cable instruments June 13, and immediately began the work of repairing cables at that place which had been cut by the *St. Louis*. Opened communication with Washington from the ship on the night of June 20, and reported arrival of General Shafter's army. Established office on shore June 21.

June 22.—Commenced repairs on Guantanamo-Santiago section, which were completed at 1 a. m., June 25. Started at once for Daiquiri and reported to General Shafter that communication had been established with Washington. As the western landing of this cable at Aguadores was in possession of the Spanish, it was taken to sea, outside of Siboney, spliced to the cable in the ship's tanks, and landed at Siboney, the landing place of the troops. This was completed June 29. A supply of specially constructed and insulated wire had previously been forwarded from the *Adria* to Major Greene and lines constructed by him to the front. Additional supplies of wire, with long-distance telephones, were at once moved forward to him at the front to enable him to complete his system of wires. The landing of the cable completed direct electrical communication between the headquarters of the army in front of Santiago and the headquarters of the Army in Washington. There being some complications regarding the use of the Guantanamo-Siboney section of the French Company's cable, an American cable was laid from Guantanamo to Daiquiri and connected with the land lines from Daiquiri to Siboney, which had been constructed by Major Maxfield. This work was completed July 15, giving independent lines from Guantanamo to Daiquiri, Siboney, and General Shafter's headquarters.

From the very inception of the enterprise the want of means for its execution was apparent. There was no cable ship under the American flag, and efforts to procure a suitable foreign ship were unavailing. The stock of available deep-sea cable in the United States was limited to small amounts held by different companies for repairs, and the cable factories were all working to their full capacity on orders already given by the War Department. The Western Union Telegraph Company had at Key West a set of machinery suitable for the work, which was placed at the disposal of the Department. A ship was immediately chartered with a view to sending her to Key West and completing her equipment there, but on returning to the Western Union office, after an absence of an hour, it was found that the Secretary of the Navy desired the immediate use of this machinery, and, as he had asked at Key West on which the installation could be made at once, all claims of the War Department were instantly released.

I was, through the Western Union Company, put in communication with President Scrymgeour, of the Mexican Telegraph Company, who placed at the disposal of the Department all the machinery, etc., of that company, which was installed on the *Adria* under the direction of Mr. Robertson, of the Mexican Company. The ship was sent to Boston and there took 24 miles of deep sea cable, furnished by the Western Union Company, then returned to New York, took on 29 miles of intermediate type cable and 50 miles insulated, but unarmored, wire, also telephones, telegraph instruments, and supplies for land lines and proceeded to Key West.

All arrangements were completed on the morning of the 28th of May for sailing at dark that evening for Santiago under convoy of the U. S. S. *Nashville*. About noon the captain of the *Adria* informed me that owing to the hazardous nature of the work to be undertaken he declined to go. However, after arrangements had been made to have another captain sent out he decided to continue in charge of the ship. I had informed Commodore Remy that I would not be able to sail at the time agreed upon owing to the action of the captain of the ship, and, as the *Nashville* was needed on the blockade, he did not feel justified in holding her. He, however, at the adjustment of the trouble with the *Adria*, ordered the *Dolphin* to be made ready to sail the next morning. About 5 p. m. Captain Hellings, who had engaged a competent crew of cable hands to accompany the expedition, informed me that they all declined to go. The Chief Signal Officer immediately procured an order directing the detail of 10 volunteers from the artillery garrison at Key West Barracks. The order was received at 11 p. m., and the men reported to me at daylight the next morning, and the *Adria* proceeded to sea under convoy of the *Dolphin*, Captain Lyon, and reached Santiago June 1.

The first cable was hooked on the afternoon of June 2, in 900 fathoms of water. The weakness of the machinery and the helplessness of the crew were at once manifest. The machinery was designed for cables in from 60 to 100 fathoms of water. Of the cable crew only one man had ever been to sea before, and none of the crew had ever seen a cable. The work of raising the cable proceeded slowly and irregularly, and when near the surface either broke or slipped off the grapple.

The bottom of the sea off the coast of Cuba was very uneven, the depth of water

changing abruptly from 100 to 700 and 800 fathoms. This necessitated the continual paying out and taking in of the grappling rope. The grapple frequently caught on rocks, when the entire rope had to be taken in and coiled in the hold and again paid out, a work of two or three hours.

Three days were thus occupied before another cable was caught in 1,044 fathoms. Straining the machinery to its utmost, and with the assistance of a detail of sailors from the *Texas*, it required more than three hours to bring the bight on board.

The work of repairing the cable at Guantanamo and Siboney and the laying of the new cable from Guantanamo to Daiquiri was but a repetition of the slow and uncertain work of grappling, of delays incident to the conditions encountered. When the work was completed on July 15 the entire resources of the *Adria* were exhausted. Every grapple was broken, all of the 2,000 feet of grappling rope was worn out or lost, and every mile of cable expended. Twenty miles of the insulated wire had been landed for use in constructing land lines, together with supply of telephones for working them. Ample means of communication had been established between all points in Cuba occupied by our troops and between Cuba and the United States.

I especially recommend for brevet of major Capt. Martin L. Hellings, United States Volunteer Signal Corps, to whose experience and skill and untiring energy, under dangerous and difficult circumstances, was largely due the success of the undertaking.

The valuable assistance and devotion to duty, under the same circumstances, of Lieut. Victor Shepperd and Lieut. F. M. Jones should not go unrewarded. I recommend that they be appointed second lieutenants in the regular establishment.

Lieut. Walter L. Clarke, United States Volunteer Signal Corps, under whose direction the *Adria* was fitted out, rendered services of the highest value, and I especially recommend him for appointment as second lieutenant in the regular establishment.

Mr. E. H. Strickland, an expert operator of the Western Union Telegraph Company, is entitled to great praise for valuable services rendered at Key West and during the entire expedition.

Acknowledgments for services rendered at critical times are due to Col. Charles S. Diehl, of the Associated Press; to Mr. Frank B. Richards and Mr. Willis J. Chamberlin, of the New York Sun; to Mr. Ernest K. Coulter, of the New York Herald, and to Mr. Henry B. Chamberlain, of the Chicago Record.

July 16.—Went alongside the *Yale* and reported to the Major General Commanding.

July 18.—Transferred signal material from the *Adria* to the S. S. *Comanche* and sailed July 21 for Porto Rico.

July 22.—Lieutenant-Colonel Reber, United States Volunteer Signal Corps, on the S. S. *Stillwater*, with Captain Clark's telegraph company and ample supply of material on board, joined the fleet.

The official report of Lieutenant-Colonel Reber is appended and marked "A."

The reports of Lieutenant-Colonel Glassford and Captain Lamar were made direct to you and are on file in your office.

The Ninth Company, Captain Ives, was promptly landed at Ponce on the morning of July 28. Captain Ives immediately established communication with all the men-of-war and transports in the harbor by signal stations on the top of the headquarters building and took charge of the telegraph office at Ponce. Captain Ives rendered most efficient service and on August 4 received a merited promotion to lieutenant-colonel and chief signal officer of the Second Corps.

I landed at Ponce on the morning of the 28th with the Major-General Commanding. On breaking open the cable hut it was found to contain the junction of the cables to Jamaica and Santa Cruz. The cable was cut and instruments placed on both lines. Failing to get a reply from either office, I reported to the Major-General Commanding, and at his request I was furnished passage on the U. S. S. *Dixie*, Captain Davis, and proceeded on to St. Thomas, Danish West Indies, where arrangements were made for opening a West India and Panama office at Ponce. As only one operator could be spared from St. Thomas it was necessary to send to Santa Cruz for another. The offer of Mr. Chamberlain, of the Chicago Record, to perform this service was accepted. He sailed at once on his yacht for Santa Cruz, taking on board an operator of the West India and Panama Company, and landed him at Ponce the next morning. The *Dixie* returned to Ponce by the way of San Juan and the Mono Passage, notifying several transports of the landing at Port of Ponce and directing them to proceed to that point. A central office was established at Ponce. From this office there were two cable lines to the United States, one via Jamaica and the other via Santa Cruz; land lines to Arroyo and thence to General Brooke's headquarters; to Juan a Diaz, Coamo, and General Wilson's headquarters; to Adjuntas and Utuado and General Henry's headquarters; to Yauco, Guanica, and General Schwan's headquarters; to the Port of Ponce, and thence by signals to all men-of-war and transports in the harbor.

The several local headquarters and hospitals were connected by telephone.

The following order was issued August 3 from the headquarters of the army in the field:

"SPECIAL FIELD ORDERS, }
No. 13.

"PAR. II. (1) All means of communication by telegraph, telephone, or otherwise will be established and maintained by the Signal Corps under the direction of the chief signal officer at the headquarters of the army.

(2) Corps commanders will establish, and at all times maintain, communication between their headquarters and headquarters of the army.

(3) The chief signal officer of each corps will furnish promptly to the chief signal officer, headquarters of the army, a diagram of his system of communication between corps and army headquarters, indicating the method of transmitting intelligence and the area and distance covered. Any change will be at once reported.

(4) All official communications offered for transmission must be written (except personal communication over telephones between officers). These will be forwarded to the chief signal officer of the army at headquarters as soon as practicable after filing with the operator. Operators are positively forbidden to receive or transmit any but written communications.

(5) Lieutenant-Colonel Reber, United States Volunteer Signal Corps, will report to the chief signal officer at army headquarters. The Ninth Company, United States Volunteer Signal Corps, Captain Ives; the Telegraph Company, Captain Clark; and the Fifth Company, Captain Lamar, are hereby assigned to duty at army headquarters and will be consolidated under the immediate command of Lieutenant-Colonel Reber, United States Volunteer Signal Corps."

So much of it as relates to the Fifth Company was subsequently changed by verbal orders of the Major-General Commanding, and Captain Lamar reported directly to Major-General Wilson.

Lieutenant-Colonel Reber was in charge of the central office and the lines to Ponce, Guanica, General Henry's headquarters, and General Schwan's headquarters.

Lieutenant-Colonel Reber is an officer of exceptional ability, and is entitled to special commendation for the prompt and efficient manner in which he performed his duty.

During the month of August from 8,000 to 10,000 words per day were transmitted by telegraph, and the telephone lines were constantly in use.

The entire system was turned over to Lieutenant-Colonel Glassford, chief signal officer on General Brooke's staff, September 1, 1898.

Very respectfully, your obedient servant,

JAMES ALLEN,
Colonel, United States Volunteer Signal Corps.

HEADQUARTERS SIGNAL CORPS BATTALION,
ATTACHED TO HEADQUARTERS OF THE ARMY IN THE FIELD.
Ponce, Porto Rico, September 2, 1898.

The CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

(Through Col. James Allen, Chief Signal Officer, Headquarters of the Army in the Field.)

SIR: I have the honor to submit the following report of the operations of the Signal Corps under my command from July 1 to the present date.

From July 1 to July 8 work on the balloon plant was continued and July 9 was made a personal inspection of our establishment at Tampa. The erection of the plant was delayed by a most unfortunate accident to the gasometer, which was badly wrecked by the railroad company 150 feet from its point of erection. The gasometer, a cylinder 12 feet in diameter, was pulled through a 10-foot trestle by the railroad company and so badly distorted that it required three days' continuous work to put it in a serviceable condition.

On July 8 I received telegraphic orders from the Major-General Commanding the Army to embark Capt. C. C. Clark's field telegraph train for Santiago de Cuba. The quartermaster's department, after several delays, supplied the U. S. transport *Stillwater* for this purpose. The loading was begun on July 13 and finished on July 14, when telegraphic orders were received by the quartermaster at Port Tampa to ship no more troops to Santiago. This order, as far as the *Stillwater* was concerned, was revoked the next day and the transport sailed on July 16, having on board Capt. C. C. Clark and J. P. Wooten, United States Volunteer Signal Corps; First Lieutenant Surg. Francis D. Patterson, Third Pennsylvania Volunteers; Second Lieutenant Albert J. Dillon and W. M. Talbott, United States Volunteer Signal Corps, and Capt.

A. D. B. Smead, United States Volunteer Signal Corps, who had orders to join Captain Ives's company at Siboney, myself, 50 enlisted men, 13 teamsters, 10 wagons, and 55 horses and mules.

After an uneventful voyage around the west end of Cuba, Santiago de Cuba was reached at 8 a. m. on July 21, where I went ashore and not finding the Major-General Commanding the Army, I reported to General Shafter, who directed me to proceed to Guantanamo Bay at once. The *Stillwater* sailed that afternoon, after discharging part of the equipment of the Second United States Cavalry, which had been left on board from the first Santiago expedition. We reached Guantanamo Bay and anchored at 8 p. m. Immediately upon dropping anchor, the boat of the captain of the port came alongside and informed us, after asking what our orders were, that the squadron with General Miles had sailed eastward for Porto Rico. Anchor was immediately raised and we proceeded to sea, overtaking the fleet at 11 p. m. that night. At daylight the next morning I reported by flag to General Miles, on board the U. S. transport *Yale*.

The *Stillwater* accompanied the fleet, and on July 25, at 8 a. m., was off the harbor of Guanica, Porto Rico. The U. S. auxiliary cruiser *Gloucester* entered the harbor first and fired a few shots, clearing the shore, when the *Lampasas* and *Nueces* entered the harbor, followed by the *Stillwater*. I immediately disembarked two signal parties, and on landing on the beach found Brig. Gen. J. C. Gilmore, United States Volunteers, in charge of landing the forces. Leaving one party in charge of Lieutenant Talbott, with General Gilmore, I proceeded to the front, then about three-fourths of a mile from the beach, and found Col. W. M. Black, United States Volunteer Engineers, with two companies of the provisional engineer battalion on the right of the road, and Maj. S. A. Day, Fifth Artillery, with the men of one battery of the siege train on the left of the road. We established communication with the beach at 10.45 a. m., and pushed forward with the advance line. It is to be noted that from that day to the present there has never been a time when the advance line has not been in communication with the headquarters of the army, during the entire campaign, and all the movements of the troops communicated to it by the appliances and methods supplied by the Signal Corps. As more troops disembarked the line was thrown out, and that afternoon a telephone line was run to the outposts.

On July 26 signal parties were established at various parts of the line and intercommunication had by telephone, flag, heliograph, and lantern. Our field telephone kits proved of great value in this service. As the outposts were moved toward Yauco on the 27th the telephone line was extended. On this day I received orders from the Major-General Commanding to build a telegraph line into Yauco and open communication with Ponce. On the morning of the 28th the lance truck and wire wagon were unloaded, and at 12 m. construction of the line was begun, 3 miles being erected before dark. More rapid progress was impossible, owing to the difficulty of building the line through Guanica, a village scattered over a large area, with the houses surrounded by dense foliage, making it necessary to cut out a right of way in a number of places. I pushed on to Yauco that afternoon, taking 20 men of the Sixth Massachusetts Volunteers from one of the outposts, and instead of encountering resistance was received by great demonstrations of joy on the part of the populace. At the junction of the Yauco and Sabana Grande road the Spanish telegraph line leading from Yauco to the west was found intact. On reaching Yauco it was discovered that the instruments and most of the battery in the telegraph office had been broken and the records carried away by the Spaniards the day before. The telegraph line, belonging to the Compañía de Ferrocarriles de Puerto Rico (French company), was in operation between Yauco and Ponce, and communication was established over this line with the headquarters of the Army, which had just landed at the Playa de Ponce. While I was in the railroad station Gen. Roy Stone, United States Volunteers, arrived at 4.55 p. m. with a detail of 20 men from Ponce, and I turned the command of the city over to him. The inclosed map, Exhibit A, shows the lines operated by the Spanish Government just previous to our landing. The next day, July 29, the flying telegraph line was completed to the junction of the Yauco and Sabana Grande line, a distance of 6 miles, and the Spanish line repaired from that point to Ponce, a distance of 23 miles. The line from Yauco to Ponce followed the railroad and was easily rendered serviceable by sending an engine and car, obtained from the railroad company, with a repair party from Yauco to Ponce. I accompanied that party, and by 4 o'clock had communication from Guanica to Ponce over our own wire. On the 30th offices were established at Tallaboa and Guayanilla.

The Fifth Company United States Volunteer Signal Corps, which was landed on the 28th at the Playa de Ponce, pushed on to Ponce; occupied the telegraph office that afternoon and cleared up some of the wreck left by the Spaniards, who having moved all the instruments, broke the office furniture, and nearly all the cells in the battery room. The next day, the 29th, this company cleared some of the lines leading

from the main office to the railroad station, where I had just brought the line in from Guanica.

The Ninth Company United States Volunteer Signal Corps, which having landed on the 28th and occupied telegraph and cable offices at the Playa, found the cable instruments destroyed and the loop from the cable hut on the beach to the office cut. This company, remaining in camp on the beach, cleared the circuit from the Playa to Ponce and established an office in the Aduana, where the headquarters of the army were located. It also established a signal station on the roof of the Aduana and placed signal parties on each of the transports in the harbor. This station giving immediate communication with each of the vessels, greatly facilitated the landing of the troops and supplies.

On July 30, Capt. C. C. Clark's company (Company D, regulars) was transferred from Guanica to Ponce on the *Stillwater*, while the animals belonging to it, which had been swum ashore at Guanica on the 25th, were sent overland to Ponce under charge of Lieutenant Talbott.

On the 2d of August, Colonel Allen returned from St. Thomas, when I reported to him and was instructed to take charge of the land communications in this part of the island. On August 3, Special Field Orders No. 13 were issued from headquarters of the army (copy attached marked B), establishing all means of communication under Colonel Allen.

Previous to this order the Fifth Company had been assigned to the Ponce office, and maintained, in addition, the office at Guanica, Yauco, Guayanilla, and Tallaboa. Its commanding officer was instructed to clear the line to Adjuntas and Utuado, where offices were opened respectively on the 2d and 4th of August. Lieutenant Wagner was directed to clear the line following the military road leading to San Juan, where, on the 1st of August, he opened a telephone station at Juana Diaz, which station was subsequently changed to a telegraph office as General Wilson's column advanced along this road. On the 5th, this entire company was relieved from Ponce and the outlying offices to the north and west, and assigned to the duty of maintaining communication along the line of General Wilson's advance to the eastward. On the 1st, a loop was run from the main office of the Calle del Sol and the Calle de la Salud to General Wilson's headquarters in the Calle Mayor, and maintained there until the 7th, when his headquarters were moved to the Rio Descalabrado, where the office was reopened on the 8th instant, and on the 9th the line extended to Coamo. This company maintained communication in a satisfactory manner, always keeping General Wilson's headquarters in telegraphic touch with the main office at Ponce, and furnishing constant telephonic communication between his headquarters and his advanced outposts, the extreme telephone stations being frequently located within range of the enemy's guns, and under fire on the afternoon of the 12th.

The Ninth Company, United States Volunteer Signal Corps, remained in camp on the beach at Playa until the 5th instant, where it repaired the loop from the cable hut on the beach to the cable office in the Calle de la Marina, and ran a separate loop for cable service to the headquarters at the Aduana. On the above date the company was moved to Ponce and relieved the Fifth Company, manning the office at Yauco, Playa, Adjuntas, Utuado, and the main office at Ponce. It maintained a signal station on the roof of the Aduana, and kept signal parties on the transports until the 10th instant, when their services were no longer necessary.

The regular telegraphic train (Company D, United States Signal Corps) supplied working parties for general line repair in the vicinity of Ponce, and built a new line from the cable hut on the beach to the main office in Ponce, which permitted the location of the cable instruments in the same building with the telegraph office, and greatly facilitated the dispatch of all cable business. On the afternoon of the 11th telegraphic orders were received from the headquarters of the army, directing the establishment of telegraphic communication with General Schwan, who was at the time west of San Germain, and some twenty-odd miles beyond the end of our system. Up to this time it had not been thought necessary to establish communication with this column. Capt. C. C. Clark, with his characteristic energy, ably assisted by Capt. J. P. Wooten, loaded the train on the railroad and reached Yauco that night, repaired the line to Mayaguez by the 15th, rebuilding it in parts, and opening offices at Sabana Grande on the 12th, San Germain on the 13th, and Cabo Rojo on the 14th. Captain Clark, together with Captain Wooten and Lieutenant Diller, deserve great credit for the rapid manner in which they rendered this line serviceable by overcoming almost insuperable difficulties caused by the weather and terrible roads. Subsequently, at General Schwan's request, he extended the line to La Marias on the 23d instant. On the 1st of September Captain Clark was directed to return to Ponce with the train, leaving operators at the various offices and a repair station at Cabo Rojo. He arrived at Ponce on the 5th and reported to my successor.

The main office at Ponce was the entire system and controlled five circuits, having approximately (copy marked C): one to Juana Diaz,

Coamo, and to General Wilson's headquarters on the military road; one to Guayama and Arroyo, opened on the 9th, giving communication with General Brooke's headquarters; one to the Playa, where the headquarters of the army was stationed; one to Yauco, Mayaguez, and General Schwan's headquarters; and one to Adjuntas and Utuado, where General Henry was located. An idea of the importance of this office and the invaluable part that the telegraph played in this campaign may be judged from the fact that from the 7th to the 8th of August alone 4,613 messages were handled in the Ponce office. It would have been impossible to have transacted this large amount of business with dry cells and open circuit keys. The use of dry cells on an open circuit proved anything but satisfactory, owing to the difficulty of keeping instruments in adjustment, even on short lines. The adoption of this untried system was a risky experiment, owing to the instability of the dry cells and the inflexibility of the system.

The volume of business at Ponce necessitated the construction of a switch board, which was built by myself out of some strips of copper and parts of broken captured instruments. A photograph of this board, together with a view of the operating room at Ponce, and a phototopographic map of the Spanish position at Aibonito at the time of the suspension of hostilities on August 13, are appended and marked D, E, and F.

Although the operations of the Signal Corps were hampered by the lack of material for repair, maintenance, and operation of permanent lines (having material alone for the construction of flying telephone and telegraph lines), the command deserves great credit for its ingenuity in meeting and solving difficulties that arose during the progress of the work. We were, however, extremely fortunate in obtaining from the enemy sufficient glass jars, coppers, and zincs to install all the batteries necessary to operate the entire system.

Lieutenant Davenport, superintendent of the lines at Ponce, deserves great credit for the promptness with which he handled the cablegram from Washington on August 13, suspending hostilities, and the subsequent orders of the major-general commanding. The cablegram was received from the cable company at 10.34 a. m. and sent to headquarters of the army by 10.37 a. m.; the subsequent orders of the major-general commanding were received from Playa, and by 11.15 an OK was obtained from the headquarters of Generals Brooke, Wilson, and Henry. The message to General Schwan was OK'd by Yauco at 11.20 and delivered by special courier at daylight the next morning at a point 20 miles north and east of Mayaguez.

At the request of Captain-General Macias, and with the approval of the major-general commanding, I directed the establishment of a transfer office within our own lines at Coamo and opened communication direct with San Juan on August 29.

On September 2 I was relieved from my duties by Lieut. Col. W. A. Glassford, who was announced as chief signal officer of all the forces on the island by Special Order No. 14, First Army Corps, Guayama, September 2, 1898.

All the officers and men under my command deserve great credit for the intelligence, energy, and zeal with which they performed their duties and the successful way in which they maintained communication, and met in an ingenious manner difficulties which in ordinary telegraph and telephone practice are deemed insuperable.

I can not recommend too highly for the zealous and efficient manner in which they performed their multitudinous and difficult duties the following officers: Capt. C. C. Clark, J. P. Wooten, and H. H. Canfield, who almost ruined his health by his zealous application to duty; First Lieuts. Wilkie Woodard and Albert J. Dillon; and Second Lieuts. William M. Talbott, W. T. Davenport, and Max Wagner; and First Lieut. and Asst. Surg. Francis D. Patterson, Fifth Pennsylvania Volunteer Infantry, who unfortunately contracted typhoid and was invalided home.

Very respectfully,

SAMUEL REBER,
Lieutenant-Colonel, Signal Corps, U. S. A.

APPENDIX B.

SPECIAL FIELD ORDERS, } No. 13.

HEADQUARTERS OF THE ARMY, Ponce, Porto Rico, August 3, 1898.

PAR. II. (1) All means of communication by telegraph, telephone, or otherwise, will be established and maintained by the Signal Corps under the direction of the chief signal officer at headquarters of the army.

(2) Corps commanders will establish and at all times maintain communication between their headquarters and headquarters of the army.

(3) The chief signal officer of each corps will furnish promptly to the chief signal officer at headquarters of the army a diagram of his system of communication between corps and army headquarters, indicating the method of transmitting intelligence and the area and distance covered. Any changes will be at once reported.

(4) All official communications offered for transmission must be written (except personal conversation over telephones between officers). These will be forwarded to the chief signal officer at army headquarters as soon as practicable after filing with the operators. Operators are positively forbidden to receive or transmit any but written communications.

(5) Lieutenant-Colonel Reber, United States Volunteer Signal Corps, will report to the chief signal officer at army headquarters. The Ninth Company, United States Volunteer Signal Corps, Captain Ives; the Telegraph Company, Captain Clark; and the Fifth Company, Captain Lamar, are hereby assigned to duty at army headquarters, and will be consolidated under the immediate command of Lieutenant-Colonel Reber, United States Volunteer Signal Corps.

. By command of Major-General Miles:

J. C. GILMORE,
Brigadier-General, United States Volunteers.

APPENDIX 4.

REPORT OF LIEUT. COL. FRANK GREENE, UNITED STATES VOLUNTEER SIGNAL CORPS, CHIEF SIGNAL OFFICER FIFTH ARMY CORPS, OF THE OPERATIONS OF THE SIGNAL CORPS AT SANTIAGO DE CUBA, WITH SUBREPORT OF MAJ. G. W. S. STEVENS, UNITED STATES VOLUNTEER SIGNAL CORPS.

HEADQUARTERS FIFTH ARMY CORPS,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Santiago de Cuba, August 15, 1898.

The ADJUTANT-GENERAL, FIFTH ARMY CORPS,
Santiago de Cuba.

SIR: I have the honor to report as follows upon the duty performed by the Signal Corps in the operations leading to and resulting in the capitulation of the Spanish army commanded by General Toral, and the occupation of the city and province by the Fifth Corps of the United States Army.

The corps comprised two detachments with separate and distinct duties. First, a detachment of 35 men, under command of Capt. G. W. S. Stevens, United States Volunteers, to which was assigned the duty of establishing and maintaining communication between the commanding general and his division commanders and the supply depots. Second, a detachment of 23 men, under command of Maj. Joseph E. Maxfield, United States Volunteers, which was attached to the Fifth Army Corps by paragraph 21, S. O. 129 c. s., headquarters of the Army, A. G. O., equipped with a balloon, compressed hydrogen for inflation, and the necessary paraphernalia, to which was assigned the duty of observation and reports from the balloon in the air.

On June 6 30 men from Captain Stevens's detachment were placed on board 30 transports (1 to each), and from that time to June 25, whether in port, in convoy, or in the debarkation from the fleet, flag communication was maintained between the different transports and the flagship of the commanding general and the vessels of the naval escort squadron, all necessary orders being transmitted with celerity and precision.

On June 25 small details of signalmen, equipped with flags, heliographs, glasses, etc., were sent to report to headquarters of the First, Second, and Cavalry divisions, to the independent brigade, the light artillery battalion, and the mounted cavalry squadron, with the object of providing communication between separated parts of the forces, but the nature of the country to be traversed, with its narrow and few trails, the dense and high tropical growth obscuring the vista in all directions, and the absence of any commanding points upon which stations could be established, soon demonstrated to me that visual signaling could not be depended upon, but that communication could only be had and maintained by telegraph or telephone, so the men were withdrawn from the commands as soon as opportunity offered.

On June 27 a detail under Captain Stevens began the work of extending a telegraph line from Siboney toward Sevilla, using for the purpose a light rubber-covered cable having a core of seven steel and one copper wire, happily provided by the forethought of General Greely. The value of this wire can not be overestimated. Having no poles, and the chapparel being too slight to sustain the weight of a wire, the perfect insulation of the wire furnished enabled it to be laid upon the brush as far back from the trail or road as possible, or on the ground itself where no course was open and a clearing back from the trail was found, and so long as it was not cut or broken communication by it was not affected. This work, and in fact all the telegraph line construction and the campaign, had to be

prosecuted without interruption on account of the state of the weather, sometimes under a blazing sun and at others under torrents of rain, when the narrow, bogged road became a roaring knee-deep water course.

On June 28 the balloon and material was landed at Daiquiri, placed in wagons and brought to Siboney; thence on June 29 to the headquarters camp about 3 miles west of Las Guasimas. The telegraph line passing from Siboney up the hill behind the town by the blockhouse, thence over the trail, joining the main Sevilla road at Las Guasimas, was completed to the headquarters camp on June 29 and telephone communication established, and on the same day the end of the cable between Santiago and Guantanamo, which had been cut by Lieutenant-Colonel Allen, Signal Corps, was landed at Siboney. By these means telegraphic communication through the necessary intermediate repeating offices was established direct between Washington and the headquarters of the commanding general at the front near Santiago de Cuba.

On June 30, under the personal direction of Major Maxfield, the balloon was inflated, and in the afternoon, after the daily thunderstorm had passed away, Major Maxfield made an ascension to an altitude of about 1,000 feet. Several other officers ascended afterwards.

An advance upon the enemy having been ordered for July 1, small details of 2 men each, equipped only with the flag and field glass, were sent the night before to each division commander and to the light artillery battalion and the mounted squadron of cavalry. On July 1, at 4.30 a. m., Captain Stevens and Lieutenant Burnell, Signal Corps, with a detachment of signalmen, began extending the telegraph line from the headquarters' camp to the front, a work of great difficulty, as the single narrow road was crowded with troops marching to the front, but by perseverance the line was pushed forward in the brush well to one side of the road so that it might not be disabled. Understanding that the advance headquarters were to be located at El Poso, I proceeded to that point early in the morning for the purpose of locating the station. It was intended to place the instrument in the abandoned hacienda of El Poso, and by 8 a. m. the wire was at that point, but located as it was, upon lower ground and some 150 yards in the rear of Loma del Posa, upon the crest of which Grimes's Battery was in position and in the line of fire from the enemy's battery replying to Grimes, it was soon evident that the telephone could not be maintained there, so the line was recovered and the instrument located in the shelter of the bank of the Aguadores River alongside the Sevilla-Santiago road, some 250 yards to the north of El Poso. The latter part of the work was performed under a smart shower of shrapnel, which continued more or less in the vicinity of the station all day. From the station orders were sent and received all day, and the line was carefully and constantly patrolled to guard against interruption. The rapid movements of the different divisions, the extent of ground covered, and the increasing advance, with the hard fighting all day, did not require the use of the signalmen, and I gathered them in as soon as practicable.

I have not received a report from Major Maxfield, commanding the balloon detachment and personally operating the balloon, but I know from my own observation that the inflated balloon was towed along the road toward the front by wagon, and that Major Maxfield, acting under orders, very gallantly took the balloon upon the skirmish line between the last crossing of the Aguadores River and the Rio San Juan, and there, with Lieutenant-Colonel Derby, engineer officer, who gave the orders, ascended and remained up under a heavy rifle fire and an excellently well-directed fire of shrapnel until the balloon was pierced many times and a descent was unavoidable. After descending the balloon was riddled and rendered totally unserviceable and of no further avail during the campaign. It is the first time a balloon has taken up observers on the skirmish line and will probably be the last time.

On July 3 the line was extended to the foot of what is known as the San Juan Hill, where were the headquarters of Generals Wheeler and Kent, thence to the headquarters of General Lawton, upon the right of the line of investment, and subsequently a branch line built from General Wheeler's to General Bates's headquarters, on the left of the line of investment. The maintenance of so many stations, with the constant patrol and repair to remedy faults both of accident and malicious disregard of the value of these indispensable lines, and the increasing sickness, required more men than the original detachment, so men were taken from the balloon detachment.

On July 7 I went to the mouth of the Aguadores River, found the telegraph line along the coast between that point and Siboney in good condition, and located and established a station about half a mile east of the railroad bridge, in a position screened from the fire of the batteries and rifle pits upon the Spanish side (right bank) of the river. Afterwards during every bombardment of Santiago by the fleet the plottings of the fall of the shots in the city were telephoned from the station near Loma San Juan to the commanding general, whose directions as to range and direction were in turn telephoned direct to Aguadores and at once flagged to the admiral.

On July 8 I went to Daiquiri, repaired the telegraph line between there and Siboney, and made ready to connect this line to the United States Government cable between Daiquiri and Playa del Este, better known as Guantanamo, which was laid for use in event of a denial to the Government of further use of the French cable. The denial did not take place and the Government cable was used only a very few times.

Captain Butler, with the Eighth Company, United States Volunteer Signal Corps, reported at Siboney on July 9, and his men were placed on duty at Aguadores, Daiquiri, Siboney, and the ammunition camp. From this time to July 17 the lines were constantly maintained in working order over their entire extent, comprising the line of investment with a line extending from the middle thereof through the corps headquarters and the different supply camps to Siboney, the land line from Aguadores to Daiquiri, and in addition the French cable from Siboney to Playa del Este, which had been seized temporarily by the United States, all the operators being soldiers of the Signal Corps. Those at the front worked and lived in mud and took their share of all hardships and exposure to fire with the remainder of the army.

Upon July 17, immediately after the occupation of Santiago de Cuba, the Spanish military telegraph line from Santiago was tapped at the junction of the Caneey and Sevilla roads and extended into corps headquarters and communication opened, and afterwards, as requested, the different camps were connected by telephone.

Very respectfully,

F. GREENE,
Lieutenant-Colonel, United States Volunteer Signal Corps,
Chief Signal Officer, Fifth Army Corps.

WASHINGTON, D. C., August 24, 1898.

The CHIEF SIGNAL OFFICER, U. S. A., Washington, D. C.

(Through the Chief Signal Officer, Fifth Army Corps, United States of America.)

SIR: I have the honor to submit the following report of my movements and duties, dating from June 9, 1898, and covering the period to July 31, 1898:

Special Orders, No. 130, paragraph 49, A. G. O., Washington, D. C., June 3, 1898, reached me on the afternoon of June 8, and I left Fort Caswell, N. C., by the first boat available. This order directed me to report to Maj. Frank Greene, United States Volunteer Signal Corps, at Tampa, Fla. I arrived at Tampa June 10, at night, and finding that Major Greene was on a transport at Port Tampa, I reported to Major Reber, United States Volunteer Signal Corps, temporarily, and reported to Major Greene by telegraph for instructions. On June 11 I reported to Major Greene on board transport *Segurancá*, and, owing to lack of accommodations on this steamer, I was assigned to the steamer *Olivette*, hospital ship, for quarters. This last steamer was watering the fleet and uncertain in her movements, and I was therefore compelled to remain on board lest I should be left on departure of the fleet. I assumed charge of the flag and code communication on the vessel by direction of Chief Surgeon Appel, commanding.

During the passage to Santiago this steamer was supposed to visit daily each vessel in the fleet and receive the sick. This entailed constant communication all day, and the available signal party of one naval cadet, one private of the Signal Corps, and myself were needed day and night.

The fleet having arrived off Santiago, I remained on board with the party till ordered by Major Greene to come aboard the *Segurancá*, on the evening of June 26.

On the morning of June 27 I landed at Siboney with a party of eight members of the Signal Corps and 10 miles of wire and two type D kits, with directions from Major Greene to repair the telegraph line up the valley road to Sevilla and as far beyond Sevilla as the commanding general at or near that point might direct, reporting to Major-General Wheeler, United States Volunteers, for signal duty, and to maintain connection with headquarters at Siboney, and then to send back the men to the *Segurancá*. (Later it will be seen that the men had to be retained, and that these directions were changed of necessity.)

I was to have the services of one packer and two pack mules, which were to join me at Siboney during the afternoon, when the headquarters train should pass through that place.

Reports of the existence of a broken line along the road from Siboney to Sevilla had come in to the headquarters of the Corps. It was supposed, presumably, that the line could be quickly patched, and the detachment was landed without arms, without blankets, and with one day's rations. I was most agreeably surprised to find the wire furnished me to be insulated 7-strand wire. Owing to the absence of the telegraph section, the party had but their hands and one pair of pliers—no climbers, tackle, brackets, or tools. Immediately on landing I occupied the old

telephone room of the Juragua Iron Company, and found that attempts had been made to destroy the telephones, also that some telephones reported to exist in a hut near the blockhouse partly up the hill west of Siboney had been removed. I set men to work tracing out an available wire to the blockhouse, others repairing telephones and running a ground wire at the building, and stationed a man to make sure of obtaining the pack animals as the train passed Siboney. I personally started with Sergeant Capron up the valley road to find the supposed line. After going some distance this line failed to materialize and I returned to Siboney. There I heard mention of a line over the hill trail to La Guasima. The packer and the mules arrived in the afternoon. I had by this time anticipated what proved necessary in the end, the building of our own line of wire. As I had 10 miles of wire, and supposed at the time that this was my limit, I calculated that I could barely reach Santiago, and determined not to waste time and wire if possible. The valley road was winding, and I proceeded to trace out this road and also the trail over the western hill, which joined the valley road at La Guasima. I took the packer as a guide and mounted one of the pack mules, followed up the trail over the hill as shown by the black line in accompanying map, and found no wire. I then came back down the valley road and found the remains of two wires in places. These were utterly useless and would have caused faults; they were overgrown with vines and no available stretches existed. This line showed evidences of being abandoned for some time. This proved correct; the Spaniards had used the railroad line along the sea front from Siboney to Santiago. The telephone room at Siboney had wires marked "C," meaning "Cuba," or Santiago, and "F," meaning Firmeza, a little village up near the mines in the hills. The line from Siboney to Daiquiri ran over the bluffs near the sea, and also another line to Daiquiri, I believe, ran in the valley behind the bluffs, in part along the Juragua Iron Company's railroad. (This railroad does not run to Daiquiri, as supposed by some, but to the mines in the hills. At Daiquiri a different company has another road running to its mines. The Siboney-Santiago road is narrow gauge, the road at Daiquiri is broad gauge. In each instance they run eastward from Siboney to Daiquiri, respectively, and then across the valley road, and turn westward into the mountains and reach their respective mines.)

Undoubted proof of the disuse of the valley lines from Siboney to El Pozo is shown by the accompanying list of telephone calls dated July 28, 1897, and taken from the San Juan blockhouse, the last station held by the Spanish before their enforced retreat into Santiago. This list of calls shows that El Pozo was the nearest station to Siboney on the road over which the American army advanced. On reaching Siboney, after this examination, I started a party running our own wire from the blockhouse on the hill northwest of Siboney up the trail and over the ridge, as shown by black line. The men had to carry the heavy coil as they laid the wire, and it was a tedious and difficult work. I had the packer take up several coils on his mules and distribute them ahead on the trail, for a mile could be saved by this trail in reaching La Guasima.

It became evident that not only had the line to be built in toto to secure freedom from faults and constant trouble, but that it would be a lengthy piece of work unless something could be devised to help. The line was passed over the crest of the hill that evening; a telephone had been made from the wrecks of instruments, and all connections made in the building, including a good ground. Private Kinkaid had been on shore and joined my detachment by order of Major Greene. This soldier had used his time well, and hunted out the railroad supplies, found sal ammoniac, bluestone, cells, zincs, and coppers, and had followed down the wires along the railroad toward Aguadores till he was fired on by the Spaniards. I now more than ever regretted the absence of keys, sounders, and telephones. Nothing but pieces of an old printing telegraph instrument could be found. The night was spent by the detachments as best they could.

On the morning of the 28th I started a party to continue the wire as best they could, while Sergeant Dillon with an assistant endeavored to make some kind of a reel for carrying wire and paying out. The coils were difficult to handle when once broken and unrolled by hand. I applied to General Garcia in person, asking for a machete, our passage through brush being impossible in places and the instrument being an absolute necessity. I was refused, but was offered the services of two Cuban soldiers "who could cut for me." Sergeant Dillon cleverly managed to make a sort of litter having a pivoted reel in the center, enabling men to carry the coil while one unwound it. After this the party managed to make more headway. The Cubans proved a waste of time, requiring valuable time to explain to them what I wanted and to get the work done with celerity. The dense undergrowth proved very useful, for by using a pole with a fork at its end the wire could be thrown over the higher brush and thus be above the ground; moreover it was free from interference. By this process some 2½ miles were laid this day. I found on ascending the hill early that morning that the line had been broken at the blockhouse near Siboney, apparently purposely. I mended it myself securely, and as each half-mile coil

was laid the type D kit was used to test back. Men were left at Siboney to use the station instrument and to draw rations.

The type D kit worked with fair success only up to the end of the day's work, some 2½ miles from Siboney. The detachment marched into Siboney this night and again slept as best they could. The Cubans had proved of so little service that I sent one away and told the more intelligent one to report at 5 a. m. next day. This individual failed to report on the morning of the 29th till about 9.30 a. m. I started the detachment to pick up the work and remained at Siboney to obtain a machete. I made another appeal to General Garcia and failed to attain my object. I finally impressed upon his adjutant-general the importance of the work and the fact that I was losing time and wished the instrument and not the Cuban. I finally obtained this second day an old machete, though I took one Cuban along, and continued the work.

Lieutenant Burnell met me this day at La Guasima and offered to assist with the men attached to General Kent's headquarters, the general having no use for the signal party at the time and kindly allowed Lieutenant Burnell to join me. This gave me much-needed assistance, as my own party was small. Each day we had not only the natural obstacles to overcome, but suffered the daily deluge of rain, and as we worked from early morning till dark, we were wet continually and often stayed wet at night. The absence of blankets and protection proved trying, but none of us worried over the physical discomforts, our interests being so keen and all of us being too busy to think much of such things. I had, of course, by this time seen that Siboney was no longer to be reached by us as a camp. The party had acquired an old kettle, and henceforth we lived and camped wherever we happened to stop.

The chief signal officer had authority to call for assistance of men from commands should it be necessary, and on this day I was passed by the commanding general between Sevilla and La Guasima, and he gave me personal directions to call on any commander or organizations for men. I needed more men, but I felt that the men familiar with the work would do better, even if few, than strangers would. After Lieutenant Burnell met me I arranged with him to go ahead of me and begin laying wire from General Kent's headquarters on out the road, passing General Wheeler's headquarters and aiming at reaching the corps headquarters. I sent wire ahead to Lieutenant Burnell by the little pack train, and he with his party began about a mile beyond Sevilla, near what I presume must have been General Wheeler's division camp and the artillery camp of the 29th and 30th of June. Meantime I continued on from La Guasima through Sevilla, and at dark reached a large encampment in which I noticed the artillery, Colonel Wood's cavalry regiment, and some other troops at K K. It had become understood now that the line was to go on out as it was needed. I found Lieutenant Burnell's starting point just at dark, and found a problem in crossing the large open spaces around this camp, for as will be seen with this splendid wire the main danger was open spaces and the difficulty of erecting poles. Where heavy chaparral existed the line was safe, and with a machete and the help of an occasional tree, we had a very good line. I had changed the type D kit and taken a type A kit in hopes of better results, and had tested back as usual. Major Greene joined us about 1 p. m. this day and talked with Siboney.

When my party reached K the darkness and the exhaustion of the men prevented any further work. Early the morning of the 30th one of the men accomplished the feat of climbing one of those very tall palms, and from this a long reach was obtained for the wire. A couple of improvised poles carried the line to a tree, and here the forward section of the line was joined, and the headquarters of the Fifth Corps in the field was connected by wire with America, Lieutenant Burnell having reached A. Near this place were several of the division and brigade camps, and I had the pleasure of informing the adjutant-general Fifth Corps that the line was at his disposal. However, on this day the field instrument caused me much misery. First someone cut the line near Siboney, taking about 20 yards of wire.

Patrols had been arranged, and two men went from A into Siboney. These men repaired the break; but even after this the getting through of messages was sometimes tedious and difficult with this instrument. I knew that the line was good, and indeed a splendid one, with no faults unless tampered with, or perhaps accidentally cut by pack trains at a few points. The horses had been left at Tampa, and were sadly needed, as patrols had a round trip of some 15 miles, and it was slow work. Indeed, my own supervision was hampered, as I could not move with the desired facility.

At A during the 30th of June I found several Signal Corps men and wrote to General Young asking him to let me have his party if not needed by him. This he very kindly complied with. I was anticipating the running of the line farther out and the necessity of equipping the stations with operators. Some men had already gone to Guantanamo and some were at Siboney. I collected this day about twenty men, but on the evening of the 30th of June the detachment was again divided up, the commanding general desiring part

bed to each of the following bodies

of troops: The First Division, the Second Division, the Third Division, the cavalry division, and Major Rafferty's independent cavalry. The artillery brigade had already its men. These parties were named and directed to join at dawn on July 1.

During the afternoon of June 30 I received directions from the commanding general to run the line the next morning to the sugar mill and to El Pozo, it being expected to make this the field headquarters for July 1. Grimes's Battery was stationed at El Pozo, and I walked over the route and had my first glimpse of Santiago from this position. The wire had already been run down the road past the division hospital, and early on the morning of July 1, with Lieutenant Burnell and the remains of the detachment, the line was prolonged to the sugar mill and stretched to El Pozo building, but the Spanish shell fire was so accurately covering this space that the building could not be used, and the sugar mill near by and about 200 yards to the right of and below Grimes's Battery became the field headquarters. The line was tied up to a tree behind the battery and then tapped at the bank of the creek at the sugar mill for a station. From this station we then had communication with A and with Siboney.

During the day of July 1 the packer appeared at the sugar mill with a long-distance telephone sent by the chief signal officer. It was a great pleasure to see it, for it at once assured perfect communication; after this there was no further trouble. Indeed I was so afraid that this instrument might be struck by fragments of some shell that I had it placed with its connection under the bank, and for a time it was used thus. It was brought out after the firing ceased. During the construction of the line the small pack train had rendered most valuable service, bringing out wire and placing it at intervals ready for use. The packer, Anderson by name, was a most willing and intelligent man and proved of great assistance in many ways; he worked untiringly till he was finally taken down with fever and was replaced by another man.

The chief signal officer informed me that there was more wire and had a supply sent out from Siboney, so that there was plenty for all emergencies. I had given directions to the patrols to, if possible, board the *Seguranca* at Siboney and get blanket rolls of the men. This was accomplished and the camp at the sugar mill station became more habitable.

A slight description of the relative positions of the points marked on the sketch is necessary. San Juan is really nearer the city, and the position of Grimes's Battery and El Pozo should be nearer Santiago. The distance between Sevilla and K and A should be greater than shown. The creek does run parallel to the trail at the sugar mill, and a trail should come in here from the north. The sketch shows this last trail as coming in farther up toward Santiago.

Major Maxfield kindly loaned me several men after the destruction of the balloon on the 1st of July.

On the morning of the 2d of July, by directions received from Lieutenant Miley, aid to the general commanding, the line was carried to the San Juan River at F, the station at C being still maintained, and on the afternoon of the 3d, under direction of the chief signal officer, Major Greene, the line was carried forward, and at H a station was established at the headquarters of General Wheeler, at the American trenches on San Juan Hill. From this point the line was afterwards carried right and left to the headquarters of Generals Lawton and Bates, respectively, thus connecting by wire the center and both flanks of the American trenches with America. I am unable to give any dates on which the last was done, as I was so ill on the 4th of July as to be compelled to lie down, and I do not know what took place. I remained at the sugar mill some days and finally went into Siboney, hoping to get relief by getting off the ground. I had supposed that it was a temporary illness, but yellow fever developed after malarial fever and I was sent to the fever camp in the hills, where I remained until the 23d of July, when I was sent home on the *Concho* by the medical authorities at Siboney.

Several of the detachments went into the hospital, and most of the men felt badly at the end. As time went on the original signal detachment was pretty well distributed at stations, and I believe the balloon detachment was eventually used in laying lines.

On the night of July 2 the night attack by the Spanish and the fire of our own lines looked from Grimes's Battery like a flank movement, and the balloon detachment and what men I had were collected and armed with rifles picked up from the roads and then formed under Major Maxfield with a view to protecting the outlook of the trail from the north at its juncture with our line of communication. All stragglers were impressed and guards were established for the night.

The line as I last left it had stations at Siboney, at A, at sugar mill, C, and at H, General Wheeler's headquarters. This line had all of its telephones in series at that time. I understand the line was carried out to General Lawton's headquarters on the right and this instrument placed in series, while the line to the left was made a separate circuit with an instrument, probably a type A or type D at H. Attached

is a photograph from Harper's Weekly which is incorrectly titled. On reaching San Juan with our line, Major Greene discovered the Spanish telephone under the Santiago side of the blockhouse, and with his approval and the permission of the officer in charge I, with much delight, put it under my arm and carried it off. It was the last station instrument used by the Spanish, and they had evidently no time to destroy it. In the photograph this instrument is standing at the foot of the tree where I placed it on July 3, and it was eventually used at General Lawton's headquarters on the right. The photograph represents the station at the foot of San Juan Hill.

I can not speak too highly of the behavior of the men in the detachment. They were not only intelligent and without thought of comfort or self, but anticipated everything. It was a great pleasure to me to serve with these men. Lieutenant Burnell pleased me very much, and I am indebted to him for much assistance and cheerful service. Many of the men were under fire at some time, and I experienced the pleasure of hearing officers voluntarily speak very highly of them. In all the work done by my detachment everything went smoothly and the establishing of the line was accomplished without a setback.

The insulated wire enabled the line to be built. With iron wire and no equipment the line would have been not only endlessly delayed, but have given much trouble, if successful at all. The dense undergrowth proved a help, for we were enabled to run long stretches of wire by placing it in comparative security in forks and in the tops of small trees. The pack train saved us more time than anything else. A wagon would have never proved as mobile. Indeed, I should most earnestly recommend that a couple of pack mules be attached to each section. The absence of the horses proved a loss, especially to the patrols, and in this very rapid movement on Santiago the line needed rapid patrolling, owing to the small number of men available for the work. The operators were busy day and night, and assisted during the day in laying lines. Even a guard was used on two nights at the Sugar Mill station, so that the men were pretty thoroughly worked. I can not make mention of individuals in the detachments, as the men were all so gratifying in their behavior that I was proud of them and of the corps.

The number of men was far too small for the attendance on the corps had the campaign proved more extended. The men could not stand a lengthy continuance of each effort in the climate. Indeed, the fortunate supplying of the insulated pliable wire and the jungle enabled us to accomplish the work with celerity. If to the situation above described the continued necessity for flag and heliograph parties had existed, the demand could not have been complied with. At least three men were required at stations to operate telephones, day and night, and to occasionally carry messages. We met with most kindly interest and assistance on the part of the officers at corps headquarters.

I have attached a brief summary of the progress of the line.

Very respectfully, your obedient servant,

G. W. S. STEVENS,

Major, United States Volunteer Signal Corps.

SUMMARY OF PROGRESS OF TELEPHONE LINE FROM SIBONEY, CUBA, TO THE AMERICAN TRENCHES IN FRONT OF SANTIAGO DE CUBA.

June 27, 1898.—The detachment of 8 men landed in forenoon, equipped station, reconnoitered roads, and ran the line from Siboney up and over the ridge to the northwest of that place.

June 28.—The line was extended to near Las Guasimas.

June 29.—The line was established through Las Guasimas to Sevilla, past Sevilla to headquarters of the cavalry division, and from this point to corps headquarters, a mile short of El Pozo or the Sugar Mill.

June 30.—The line was in use and was patrolled to and from Siboney, and the detachment was subdivided for service in the battle of July 1.

July 1.—The line was extended to El Pozo and the Sugar Mill, and was used from this point at field headquarters during the battle of July 1.

July 2.—The line was again carried forward to San Juan River, by some called the Agnadores River. (See map.)

July 3.—The line was carried to San Juan Hill and the center of the American trenches.

Later, on dates unknown to me

—tended to both flanks of the American trenches.

APPENDIX 5.

REPORT OF LIEUT. COL. JOSEPH E. MAXFIELD, UNITED STATES VOLUNTEER SIGNAL CORPS ON WAR-BALLOONING AT SANTIAGO DE CUBA.

WAR DEPARTMENT, SIGNAL OFFICE,
Washington, September 10, 1898.

Maj. Gen. WILLIAM R. SHAFTER,
Commanding Fifth Army Corps, Montauk Point, New York.

SIR: I have the honor to transmit for your information copy of a report made by Lieut. Col. Joseph E. Maxfield, United States Volunteer Signal Corps, who was obliged to leave Cuba owing to sickness.

This report was made by my orders in order that there might be on file in this office a report of the operations of the balloon train of the Signal Corps during the siege of Santiago de Cuba.

Very respectfully,

A. W. GREELY,
Brigadier-General, Chief Signal Officer.

[First indorsement.]

HEADQUARTERS FIFTH ARMY CORPS,
Camp Wikoff, Long Island, September 18, 1898.

Respectfully forwarded to the Adjutant-General of the Army. The services rendered by the balloon detachment as well as by the whole of the Signal Corps was satisfactory.

WM. SHAFTER,
Major-General, United States Volunteers, Commanding.

JACKSONVILLE, FLA., August 20, 1898.

The CHIEF SIGNAL OFFICER, U. S. A.
Washington, D. C.

SIR: I have the honor to make report of the operations of the balloon sections of the Signal Corps during the present war with Spain.

Pursuant to telegraphic orders, I was relieved from duty as signal officer, Department of the Lakes, on April 13, 1898, and left the same night for Governors Island, New York, where I reported to the major-general commanding the Department of the East for duty. I was instructed to put the balloon equipment of the Signal Corps, which had been shipped from Denver to Fort Wadsworth, N. Y., in thorough repair, it being intimated that a balloon might be employed at Sandy Hook as a means of obtaining early notice of the approach of an enemy's fleet. Shortly after, however, I was informed by the Chief Signal Officer that an allotment for the equipment of a balloon train had been obtained, and was instructed by him to thoroughly equip a balloon train for the field. Shortly after these instructions were amended so as to require the equipment of two trains instead of one.

The apparatus already in the possession of the corps embraced 1 silk balloon, 1 small generator (which was out of repair), 1 small gas compressor (also out of repair), 180 steel tubes for holding compressed hydrogen, 1 balloon wagon, 1 wagon for the carriage of tools and miscellaneous supplies, and 5 wagons for the carriage of the gas tubes. Both the compressor and generator, while large enough for use for purposes of instruction, were too small to give good results in actual service.

The plan adopted looked to the organization of 2 balloon companies, each equipped with 2 balloons, 1 generator for hydrogen gas, and 180 tubes filled with compressed hydrogen, together with the necessary wagons for the carriage of the apparatus and the material used in the manufacture of gas. In addition, a permanent gas plant was to be installed at the base of supplies, consisting of a generator and compressor of large capacity, to which the gas tubes could be sent for refilling after use. I was informed by the Chief Signal Officer that the necessary wagons, aside from those already belonging to the service, would be procured from the Quartermaster's Department, and that bids for additional gas tubes had already been invited by the disbursing officer of the Signal Corps. Apart from these, all necessary apparatus and material was to be ordered by me. Both in the repairing of the apparatus already on hand and in the ordering of new, great difficulty was had in finding firms who could, without delay, perform the necessary work. In spite of these difficulties, by the middle of May all the apparatus on hand at the beginning of the war had been placed in thorough repair, the work upon the new apparatus was approaching com-

pletion, and orders had been placed for the necessary tools and material for the generation of gas.

During the latter part of this work I had the assistance of Mr. L. B. Wildman, aeronautical engineer, afterwards first lieutenant, United States Volunteer Signal Corps. As fast as the materials and apparatus were ready they were shipped to Tampa, Fla., at which point it was decided to erect the permanent gas plant, at least temporarily. Much delay occurred in the shipment of the balloon material from Fort Wadsworth, owing to its great weight and the lack of men to properly handle it, the garrison at that time being small and engaged in other work.

In addition to having placed in thorough repair all the apparatus on hand, there was purchased 1 portable gas generator, 1 semiportable generator of large size, 3 balloons, 1 compressor of the capacity of 25,000 cubic feet per day, 1 large sheet-iron gasometer, 5,000 feet of balloon cable, an additional cable reel so designed as to be easily placed in an army wagon and dismounted at will, 1 portable boiler for the operation of the gas generator, 1 large stationary boiler for the operation of the compressor. In addition there was also purchased a large variety of tools of all kinds suitable for working both in wood and metal, to enable repairs to be readily made in the field. Large quantities of iron turnings and sulphuric acid for the generation of hydrogen were also shipped to Tampa. By the middle of May all orders had been placed and work had progressed, so that it was possible for me to leave New York and to proceed to Tampa for the purpose of organizing the balloon companies. As I was at the same time acting as censor over the cables terminating in New York, and as the Volunteer Signal Corps had not been organized at that time, I was informed by the Chief Signal Officer that it would be necessary for me to remain in New York for some time longer. I did so remain until May 31, placing the work of inspection of the apparatus undergoing construction under the immediate supervision of Mr. Wildman.

Under telegraphic instructions I left New York on May 31 and proceeded to Tampa, Fla. On reporting there to the Major-General Commanding the Army, I was informed that it was desired to send a balloon train with the expedition at that time fitting out for Santiago de Cuba, and was by him directed to report to the major-general commanding the Fifth Army Corps. Upon so doing I was informed that I had but two or three days in which to organize a company and get the necessary apparatus and material ready for transportation. At this time there was under my command not a single officer or man, and it was found that the articles pertaining to the balloon equipment which had been shipped from New York had not been unloaded from the cars at Tampa, but were at various points in the railroad yards at Tampa and vicinity. On applying to the depot quartermaster at Tampa I was informed that he knew nothing of the shipments, but was given permission to go over the bills of lading in his office. On some of these bills of lading it was found that the number of the car in which the goods had been shipped was missing, and it seemed almost a hopeless task, in the short time available, to locate and get together the necessary equipment for the Santiago campaign. The depot quartermaster, however, immediately detailed a clerk who, in conjunction with the railroad officials, traced and found most of the cars containing the balloon material, while Major Greene, United States Volunteer Signal Corps, placed at my disposal three army wagons and a small force of men. A detail of 30 men from an infantry regiment was also secured. The five tube wagons pertaining to the balloon train were unloaded first, giving me eight wagons in all. With these the work of unloading progressed rapidly, and on the night preceding the departure of the troops from Tampa to Port Tampa all the material necessary for the equipment of a balloon train had been gotten together. Ten men of the Signal Corps, United States Army, from Chickamauga, 4 from Atlanta, and 10 from Major Greene's command at Tampa, had in the meantime reported to me for duty. Major Greene also placed at my disposal the services of Second Lieut. George C. Burnell, United States Volunteer Signal Corps, and the promotion of Sergt. Walter S. Volkmar to the grade of second lieutenant gave me two officers. Two cars containing the gas tubes and some of the heavy material were not unloaded, but at my request were shipped by the depot quartermaster to Port Tampa. Request was made for two cars upon which the other necessary apparatus and stores could be loaded, and I was informed that these would be ready at the yards of the railroad company at 10 o'clock that evening. These cars, however, could not be found at the designated place when the loaded wagons arrived there, but by going directly to the yardmaster of the railroad company two other cars were secured, and all property except camp and garrison equipage and rations were loaded thereon before 3 o'clock in the morning. Requisitions had in the meantime been made for necessary tentage and ordnance property to equip my small command. All the necessary tents were secured, but practically no ordnance supplies could be had, and the command sailed from Port Tampa with but a portion of the men equipped with a mess outfit, while none of them had any arms. In order to be sure that no delay would arise in the shipment of tents and rations to Port Tampa, these were sent over the road by

wagon together with the men of the command. I myself left for Port Tampa at 4 o'clock the same afternoon, but did not reach there until after 9 o'clock, owing to the delay caused by the passage of troops trains. The next day was the one devoted by the troops to the loading of the transports. It was found that no assignment to any transport had been made for the balloon detachment, and it was only after some time and by the order of the commanding general that such assignment was obtained. The cars containing the balloon material were found early in the morning, and by placing an officer upon the train of which they formed a part, these cars were at last brought opposite the designated transport, the *Rio Grande*, and the supplies unloaded. Loading upon the transport at once began, but owing to the fact that the carboys of sulphuric acid could not be placed in the hold but had to be hoisted up over the ship's side, it was not until the next morning that the loading was completed. Lieut. James R. Steele, United States Volunteer Signal Corps, reported to me before the sailing of the expedition.

On June 22 the landing of the troops of the expedition began at Daiquiri. The order of landing, as issued by the commanding general, prohibited all persons not serving immediately with organizations designated in the order from landing, and the balloon detachment remained on board the transport until June 28. On June 27, I was informed, verbally, by Maj. Frank Greene, United States Volunteer Signal Corps, chief signal officer of the Fifth Army Corps, that the major-general commanding directed that the balloon detachment should land and proceed to the front for the purpose of making a reconnaissance from the balloon. Request was at once made for authority to land the generator with the necessary acid and iron-turnings, and to inflate the balloon at the landing place and tow it to the front after inflation. The object of this was to keep the compressed gas stored in the cylinders as a reserve, as, if these were once exhausted and the generator was not landed, but one inflation of the balloon could be made. This request was refused. That evening, as soon as the necessary facilities could be obtained, the landing of the balloon and the gas cylinders was begun. Before all the tubes had been placed upon the lighter the sea became extremely rough, and after one man had fallen overboard and was rescued with great difficulty, it was found necessary to delay the unloading until the next morning. Landing was completed on the morning of the 28th, the equipment loaded upon seven army wagons, and the march to the front began. Owing to the condition of the roads it was found necessary several times to partially unload the wagons at bog-holes, and it was not until that night that Siboney was reached. I reported to the commanding general that night and received instructions to continue the march the next morning and report to him at whatever point should be established as his headquarters upon my arrival. The detachment reached headquarters early in the afternoon of the 29th, but a heavy rainstorm prevented any work being done with the balloon that day. On the next day the balloon was spread. It was found that the extreme heat had softened the varnish so that the two sides of the envelope were stuck together. It was also found that either from scorching or the use of improper varnish portions of the balloon were badly rotted. This balloon was the old balloon in the possession of the corps at the beginning of the war. After the envelope had been fully spread, numerous small holes in it were found, as well as several rents of considerable extent. It was in such condition that had the ascents to be made in time of peace it would have been felt unsafe to use it. The rents were carefully sewn and covered with adhesive plaster and the balloon inflated. Three ascents were made that afternoon—the first by myself and Sergeant Baldwin, Signal Corps, United States Army; the second by Second Lieut. Walter S. Volkmar, General Castillo, of the Cuban army, being carried as a passenger; and the third by the chief engineer officer of the Fifth Army Corps and myself. These ascents resulted in an increase of knowledge as to the direction and course of roads and streams immediately in our front. The fact that the Spanish fleet of Admiral Cervera was in the harbor of Santiago was at last definitely settled. It could not be determined, however, how strongly the fortifications in our front were held, nor could they be located except with the greatest difficulty. A most flattering verbal report as to the value of the balloon in war was made by the chief engineer officer to the commanding general, with the recommendation that it be employed during the battle planned for the next day. That evening verbal orders were brought me by the chief engineer officer of the Fifth Army Corps from the commanding general to report with the balloon, at as early an hour as practicable, at El Poso, which was to be the headquarters of the commanding general during the battle, and that there I would find the chief engineer officer who would accompany me in the ascents. The balloon was secured in the most sheltered place possible for the night, and the detachment rose at daybreak and proceeded to replace the gas which had been lost during the night. It was also found that new rents had been caused by the wind during the night, which had to be repaired before the balloon could be used. As soon as these repairs were completed the detachment took up its march for El Poso, towing the balloon by means of captive ropes. On arriving at the foot of the hill at El Poso

the detachment was halted, and I rode up on the hill for the purpose of finding Lieutenant-Colonel Derby, the chief engineer officer, and selecting a suitable place for the ascension. Upon reaching the summit of the hill none of the officers attached to headquarters were visible, and it was found that the hill was covered by a slow, but remarkably accurate, shrapnel fire from the enemy's guns. I rode over the hill in search of headquarters, my horse being shot just as I turned to regain the base of the hill. Here I met Lieutenant-Colonel Derby, and the balloon was carried to a place in the river bottom, about a quarter of a mile to the rear, and an ascent made, Colonel Derby and myself occupying the basket. From this point a message was sent to the adjutant-general of the corps, setting forth the movement of troops both at El Caney on our right and upon the road to our front, which led to the hill at San Juan. Under orders from the chief engineer officer, the balloon was then pulled down to within a few hundred feet of the ground—the occupants of the basket still remaining in it—and towed toward the front until a more suitable position for viewing the intrenchments at San Juan could be found. It was supposed that the balloon would be halted at El Poso and that point taken as a station for the balloon detachment, as had been originally intended. As this was not done, a statement was made by me as to the results of artillery firing at balloons in experimental work abroad and the conclusions to be drawn from such, and the fact stated that in my opinion it was unwise to carry the balloon farther to the front. No formal protest, however, was made, as it was felt that the chief engineer officer was the representative of the commanding general and that his desires were to be carried out. As a consequence, the balloon was carried rapidly to the front until it was immediately in the rear of the troops, who were then deploying for an attack upon the block-house and trenches on the San Juan Hill. As no further progress to the front could be made, the balloon was then carried across the bed of the San Juan River and into a large meadow just to the right of the road and river.

In passing through the trees and brush along the river banks the ropes holding the balloon captive became badly tangled in this brush, and no movement for a time was possible; nor, for the same reason, could the balloon be given the necessary elevation to enable it to do its best work. Nevertheless, from this position the fact was determined that the intrenchments on the San Juan Hill immediately in our front were strongly held, and a message to this effect sent to the commanding general with the suggestion that the artillery upon the hill at El Poso should reopen its fire upon them. This was done. The attention of the occupants of the basket was given almost solely to an examination of the ground held by the enemy and that immediately in their front, and it is impossible for that reason to state what was the disposition of our own troops in the immediate vicinity, most of whom were hidden by the brush. It was noticed, however, that dismounted cavalry were deploying in the open meadow in which was the balloon, about 50 yards in our front. It was at that time that the enemy opened fire. This fire appeared to be musketry alone. In a very few minutes it became apparent that the balloon had been struck, as there was a decided loss of gas, and the rope having not yet been cleared from the brush I gave the order that the balloon should be pulled down, hoping to be able to disentangle it, carry it to the rear, repair the holes in it, and replace the lost gas from the tubes which still remained full. This order was obeyed, and for twenty or thirty minutes the detachment was busy endeavoring to disentangle the captive cord and extend it along the bed of the river. During this work the detachment was exposed to a heavy musketry fire, from which they were fortunately fairly well sheltered by the banks of the river, and although the leaves oftentimes fell in showers from the bushes and trees overhanging the bank, but one man, Private Heywood, Signal Corps, United States Army, was struck, he receiving a wound in the foot.

An examination of the balloon having shown several holes in the upper portion, and the loss of so much gas as to render the further use of it impossible, orders were given to secure it and to retreat along the river bottom. This was done, and the detachment in a short time reported at El Poso. Later in the day Second Lieut. Walter S. Volkmar was instructed to make an examination of the balloon and report whether it had been so badly damaged as to render its recovery useless. He reported that the gas had entirely escaped and that there were numerous holes and rents in the envelope, which would render it totally unserviceable for future use in the field where facilities for repairs upon a large scale were lacking. He, however, folded the balloon and placed it in the basket, and it was afterwards recovered and brought to Siboney. During the rest of the day and evening of July 1 the detachment was employed in relieving armed men coming to the rear with wounded soldiers, and in any way in which it was thought they could be useful. On the next day a portion of it was directed to report to Maj. Frank Greene, chief signal officer, Fifth Army Corps, for duty in connection with telephone work. A detail was also made from it for the purpose of carrying some rapid-fire guns to the front. Until the morning of July 3 the detachment remained camped at El Poso, at which time it was marched back to the headquarters of the commanding general and there went into

camp. A cablegram having been received from the Chief Signal Officer stating that a new balloon had been shipped me which would soon arrive at Santiago, a report of this fact was made to the commanding general, who informed me that no further work with the balloon would be necessary in the present campaign. Request was made on the same day, through Maj. Frank Greene, chief signal officer, for permission to ship back to Siboney and to the United States the empty gas tubes, so that they might be refilled and be available for further work at the earliest possible moment. This permission was refused on the ground of lack of transportation.

On July 5 the detachment, with the exception of six men who were detailed for work upon the telephone lines under Maj. Frank Greene, Signal Corps, was marched to Siboney for the purpose of storing the balloon, reel, and apparatus other than tubes. Here it was found that Lieut. Col. James Allen, United States Volunteer Signal Corps, to whom, in compliance with orders, I had reported by letter upon my arrival at Tampa, was at Guantanamo on the cable steamer *Adria*. A cablegram was sent him, requesting an interview relative to the future operations of the balloon sections, and asking if he could come to Siboney, as I had no means of reaching Guantanamo. Colonel Allen reached Siboney that evening and immediately made request to the commanding general for detail of myself and ten men of my command to aid in the laying of a submarine cable from Daiquiri to Guantanamo. This detail having been made, I left Siboney upon the cable steamer *Adria* that night with the ten men, the remainder of the detachment being ordered to repair the Spanish telegraph line from Siboney to Daiquiri, so that it could be used in conjunction with the new cable about to be laid. On July 14 I returned to Siboney, where I was joined two days later by the absent members of my command. Permission was again requested to transport the gas tubes, which had been left near Sevilla, to Siboney and thence to the United States. This was granted, and on July 16 the detachment was marched to Sevilla and the tubes loaded upon wagons which were returning empty from the camps at the front. The cable steamer *Adria* having been ordered back to the United States, these tubes were loaded upon her at Siboney on the night of July 18, and the property for which I was responsible was turned over to the care of Second Lieut. James R. Steele, United States Volunteer Signal Corps.

It is with pleasure and pride that I refer to the conduct of the small detachment under my command in the field. Second Lieut. James R. Steele performed his duty in the same quiet, thorough, and faithful manner which had marked his entire previous career in the Signal Corps. Second Lieut. Walter S. Volkmar proved himself to be an energetic and courageous young officer. The entire command bore itself well, not only while under fire, but also during the days of hard work and privations which followed. To Sergeant Kennedy, Signal Corps, United States Army, praise is due for display of courage and uniform cheerfulness, which did not fail to have its effect upon the entire command.

On July 19 I sailed upon the steamer *Adria* for Tampa, in obedience to the provisions of paragraph 1, Special Orders, No. 40, dated Headquarters Fifth Army Corps, July 17, 1898, which directed me to proceed to Tampa, Fla., and report for orders to the Adjutant-General of the Army. Tampa was reached on July 27, where it was found that under the able direction of First Lieut. L. B. Wildman, United States Volunteer Signal Corps, the apparatus pertaining to the gas plant for the generation and compression of hydrogen had been instituted. A balloon company was also found there under his command, together with two balloons and all the necessary appliances for the equipment of a balloon train. On July 29 I was seized with fever and was taken to the hospital at Tampa, where I remained until August 5. On that date I left for Jacksonville, Fla., in compliance with the provisions of S. O. 168, W. D., A. G. O., dated July 19, 1898, or rather upon telegraphic notice that such an order had been issued. After my departure Lieutenant Wildman reports that the balloon section which still remained at Tampa was made ready for duty at Porto Rico in obedience to orders received by him, but that owing to the cessation of hostilities it has remained at Tampa, where ascensions for purposes of instruction were made on one day.

The difficulties met with in securing the rapid manufacture of apparatus needed have already been referred to. No less difficulty was found in securing the services of experts in the varnishing and care of balloons. While in New York innumerable applications for enlistment were received from professional aeronauts, but it was found to be wholly impossible to obtain the services of men of the class desired. The American aeronaut, making his ascensions as he does for purposes of exhibition only, desires to land in the shortest possible time. It is therefore a matter of little importance to him whether his envelope is made highly impermeable to the gas contained in it or not, and the result is that he knows little or nothing about the proper processes to be employed in making and keeping the envelope highly impermeable. It is understood that the services of two French experts were offered after I left New York, but only at the most exorbitant salaries. In spite of the difficulties met with, however, it can be said that within five weeks after the declaration of war the Signal

Corps was able to put a fully equipped balloon train in the field, and that by the time the companies of the Volunteer Signal Corps had been organized and were ready for service another train was practically completed. At the time of the cessation of hostilities, one set of equipment was at Santiago de Cuba, with all the necessary apparatus and material for making balloon ascensions, although work could not have been done with it as rapidly as would have been the case had a fresh supply of tubes containing compressed gas been available. Another balloon section was at Tampa, likewise fully equipped.

As regards the conclusion to be drawn from the work of the balloon section in the campaign of Santiago, in its bearing as to the value of the use of the balloon in warfare, a few remarks may be useful. As has been stated above, the use of the balloon in this campaign was very limited. Had it been brought ashore and used daily from the time of landing until the day of the battle upon July 1, it is believed a large amount of exceedingly valuable information would have been obtained. As it was, the few ascents made on the afternoon of June 30 were not rich in results, although some additions to the map of the country in our front were made possible by them. On July 1 at least two items of information of value were obtained by the use of the balloon. These were as follows: First, the fact that the intrenchments at or near the hill of San Juan were strongly held by the enemy. The obtaining of this information resulted in the opening of fire by the battery at the hill of El Poso earlier than would have otherwise been the case. Second, the official report of Brigadier-General Kent, commanding the First Division, Fifth Army Corps, as published in the press, states:

"The enemy's infantry fire, steadily increasing in intensity, now came from all directions, not only from the front and the dense tropical thickets on our flanks, but from sharpshooters thickly posted in trees in our rear, and from shrapnel apparently aimed at the balloon. Lieutenant-Colonel Derby, of General Shafter's staff, met me about this time and informed me that a trail or narrow way had been discovered from the balloon a short distance back leading to the left to a ford lower down the stream. I hastened to the forks made by this road, and soon after the Seventy-first New York Regiment, of Hawkins's Brigade, came up. I turned them into the by-path indicated by Lieutenant-Colonel Derby leading to the lower ford, sending word to General Hawkins of this movement. This would have speedily delivered them in their proper place on the left of their brigade."

The country in which the army was operating was covered with brush and trees and, moreover, was hilly. Such a country is the one least likely to afford to the balloon a good opportunity of proving its usefulness. Movements and positions which upon a flat, open country could have been easily distinguished from the basket of a balloon, and in no other way, were hidden or only discerned with the greatest difficulty.

Experiments made abroad in photography from balloons, using a telephoto lens, have shown that in this way objects that could not be seen even with strong glasses can be located. It is believed that the use of a telephoto lens is almost essential if the best results are to be obtained from the observations. Negatives thus made could be rapidly developed and the pictures greatly enlarged by being thrown upon a screen by the aid of a magic lantern, thus enabling the making of a very complete map of sections of country even when occupied by the enemy.

The balloon used in the Santiago campaign was one of about 15,000 cubic feet capacity. This raised the two observers, the necessary instruments, and the captive cord, but not enough ballast could be carried to give easy control of the balloon in case it had broken away; furthermore, even in a slight wind it was found that the lifting power of the balloon was sensibly lowered. It is therefore believed that balloons employed for military reconnaissance should be of at least 18,000 cubic feet capacity.

The use of gas compressed in steel cylinders for the inflation of the balloon seems to be the best method until new processes of generation of hydrogen shall have been discovered, thus enabling portable generators of light weight to be utilized. The present portable generator to be of sufficient capacity is almost too large and too heavy to be moved over rough roads, while the weight of the material for the generation of the gas is excessive. It would therefore seem preferable, wherever possible, to place the generator at the base of operations and to keep the balloon supplied with gas by the shipment to the front of tubes.

The carriage of large quantities of sulphuric acid is difficult when carried in carboys, as was the case during the Santiago campaign. It was found that the stoppers often were knocked out or the necks of the carboys broken while being transported. On the other hand, the carriage of acid in lead-lined iron cylinders, while much more convenient, offers the objection that even the slightest hole in the lead lining will lead to leakage of the acid, which is a very serious accident.

It is also believed expense is a matter

better in the case of field operations, where, to substitute ingots of zinc for the iron

turnings ordinarily used. By doing this a greater rapidity of generation would be secured and less transportation would be required.

Taken as a whole, the present apparatus for balloon work is cumbersome, and can be transported over bad roads only with great difficulty. There is a wide field for improvement, and it is to be hoped that in the coming years sufficient appropriations may be secured to enable a thorough series of experiments to be made looking toward the finding of new methods of generation and the lightening of the apparatus employed and the weight of material used.

Very respectfully, your obedient servant,

J. E. MAXFIELD,
Lieutenant-Colonel, United States Volunteer Signal Corps.

APPENDIX 6.

REPORT OF SECOND LIEUT. GRANT SQUIRES, UNITED STATES VOLUNTEER SIGNAL CORPS, ON TELEGRAPHIC CENSORSHIP.

NEW YORK CITY, *October 25, 1898.*

The CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.

SIR: In compliance with your instructions, I have the honor to respectfully submit the following report as military censor at this station during the recent hostilities between this country and Spain:

On April 25, 1898, by order of the President, the cable-telegraph systems, seven in number, having their termini in this city, were constructively taken possession of by yourself, as Chief Signal Officer, charged by law with the control of all telegraph and cable lines within the United States in time of war, and you designated Lieut. Col. Joseph E. Maxfield as military censor at this station, to represent you in the work of performing such military occupation of the telegraphic cable systems as the exigencies of the war then just begun should from time to time make manifestly needful.

Lieutenant-Colonel Maxfield went into actual possession of the office of the United States and Haiti Cable Company at No. 17 William street, this city, as it was recognized that over the lines of this company the greater part of information between the United States and the points most likely to be the scene of hostilities would be transmitted. This office was the actual terminus of the 1,500-mile cable starting from this city and extending to Cape Haitien, on the island of Haiti, at which latter point the line diverged, in connection with the French company's cable system, both westward, to points in Cuba, and eastward along the Island of Porto Rico, and thence southward to the Island of Martinique.

The military occupation of the telegraphic-cable systems at this point on April 29 was continued under Lieut. Col. George O. Squier, succeeding Lieutenant-Colonel Maxfield as military censor on May 15, and later, on June 11, by the undersigned, who continued to occupy the position until the censorship over telegraphic business was raised on August 18, 1898, five days after the signing of the peace protocol between this country and Spain.

The first weeks of the censorship were chiefly employed in preventing information regarding projected movements of bodies of troops, naval vessels, and transports from reaching the press, and to that end it became necessary to charge the responsibility for the observance of this regulation ordered by the Chief Signal Officer upon at least two sworn assistants in each of the cable companies' transmitting offices who were citizens of the United States, and who made oath to faithfully observe the orders of the military censor at this station in obedience to the written engagements of the presidents of the various telegraph cable companies made to the Chief Signal Officer when he assumed possession constructively of their system on April 29. Competent men were found to fill all these positions, and during the one hundred and twelve days during which the censorship was enforced there was not an hour during the twenty four on any day when military censor was not in immediate telegraphic and telephonic communication with the various cable offices when not actually present at them to supervise the business passing over their lines.

It was avowedly the desire of both the President and the Chief Signal Officer that the military censorship at this point should be exercised throughout the war with the least possible inconvenience to all legitimate commercial business, including press business and when the subject-matter of the messages themselves did not conflict with the known requirements insisted on by the Government, no delay or cen-

sorship was allowed to interfere with the free and prompt conduct of business as transacted before the Government took control.

It was part of the duty of the undersigned as military censor to expedite the large volume of Government business which went almost exclusively between Washington and Cuban and Porto Rican points over the lines of the United States and Haiti Cable Company. All Government business had an absolute preference over all other matter awaiting transmission in either direction over the line of this cable, and as between the various governmental matter the business of the Navy Department was given the preference until our forces were landed on the Island of Cuba, whereupon the preference was given to the War Department, next the Navy Department, then the State and Post-Office departments in their order, and careful regard being had on all special occasions by the undersigned to give the preference to any Government messages plainly calling for prompt transmission, regardless of the department whence it emanated. Instructions as to the same requirements were given by the undersigned to the officials of the French cable system, whose lines were used from Cape Haitien westward to Guantanamo and Caimanera, and later on the reestablishment of the line to Santiago de Cuba, and to their faithful observance thereto not a little of the promptness which was afterwards obtained in the transmission of Government business in large volume must be credited.

On special occasions, and on the special request of the officers of the Executive and War and Navy departments, including the commanding officers of armies and fleets, most rapid service was had in the transmission of messages between Washington and the front.

Twenty minutes was the average time for the transmission of important messages between the War Department and headquarters in the field before Santiago, and on one occasion, to make some specific illustrations of the advantage gained by military occupation of cable offices in time of actual warfare, another instance may be given. Early in August, after the occupation of Santiago by our military forces, the censor received the request at the Haiti cable office in New York that he furnish to the admiral commanding the American naval forces at Santiago with true Washington time for the purpose of correcting the chronometers on the flagship, and that an officer from that vessel was then at the Santiago cable office awaiting the desired information. It lacked about fifteen minutes of the noon hour when this request was received. The censor made known the wishes of the admiral to the officer in charge of the Naval Observatory at Washington by telegraph, and the line between New York and Washington running into the Haiti cable office was cleared of business. The signal of one click of the key was agreed upon as notification from Washington of the moment of noon. The operators at the Cape Haitien end of the cable were ordered to stop transmitting or receiving over any of the lines terminating at that point and to keep the line clear. The Santiago office was notified of the arrangement, and promptly at midday the agreed-upon signal was flashed from the Naval Observatory at Washington into the Haiti cable office; the operator at the recording instrument of the cable, not 10 feet away, sent the signal instantly to Cape Haitien; the operator there flashed it to Santiago, and in a period of time which could not have exceeded two seconds the officer from the admiral's flagship was made acquainted with Washington time, and a new and unique record made for the rapid transmission of information was obtained.

Again referring to the more specific work of censorship at this station, the undersigned reports that there was a wide misinterpretation put upon the performance of the duties of the Government in connection with the military occupation of cable-telegraph lines. It was deemed, and the press largely are responsible for this widespread impression, that the censorship by the Government was directed against the press to the exclusion of all other class of cable business. As a matter of fact it was not directed against the press at all except incidentally. The censorship was the control over all classes of cable business—private, press, and commercial—made necessary by the exigencies of war. At times it fell with some severity upon the press, but at no time with anything like the degree of inconvenience that it caused the commercial interests, that have to employ the cable in the transaction of business. It became necessary in the early stage of the hostilities to promulgate an order that no code or cipher messages were to be transmitted other than those to and from Governmental authorities at Washington and the legal diplomatic and consular representatives of neutral foreign governments. To the latter at all times the privilege of communicating in code and cipher was extended freely.

A simple record of the source and destination of these messages in both directions was kept for the information of the authorities at Washington, but at no time did the censorship operate as a prohibition on any class of cable business except those in Spanish to and from Spain and to and from the islands of Cuba, Haiti, Porto Rico, Jamaica, and St. Thomas, in which, of course, were included the restrictions as to cipher and code messages above noted.

As promptly as it was deemed safe by the Chief Signal Officer after the conclusion

of the peace protocol all restrictions were raised, even those relating to Spanish messages, and exceptions were made even at an earlier date, when the peace negotiations had actually commenced, to enable the Governor-General of Cuba to communicate freely through the cable leaving New York with his home Government regarding the disposition he was to exhibit to meet the changed conditions then existing in both the eastern and western half of the Island of Cuba.

After the capture and transfer to this country of large numbers of Spanish officers and men it was the privilege and pleasure of this Government to direct the censor at this station to pass without question numerous messages sent by and addressed to those of the enemy who had fallen into our hands and were confined at Portsmouth, Annapolis, and Norfolk, and at military prisons in Georgia, and it was noticeable that the phraseology of those messages indicated the surprise and pleasure which both the senders and recipients felt at the kind treatment they were receiving at the hands of their captors, the safety and good fare they enjoyed, and their lack of nothing to make them comfortable.

This relaxation of the censorship conduced not a little to the diminishing of bitter feeling between the large numbers of people in Spain whose relatives were confined to this country, and with whom they were enabled readily to communicate by their captors. It was the policy of the Government to extend every possible facility in matters of telegraphic communication to their captive enemy, while exercising the strictest censorship over all matters emanating from our enemy still in arms.

Allusion has already been made to the censorship as it incidentally applied to press business. All orders which the censor was obliged to announce were addressed to the officers of the cable companies, and hence arose some confusion at various stages of the war as to the regulations in force. These instructions were private and were not always intended for the information of the press or public. It was manifestly improper if a contraband message was stopped, delayed, or censored, to notify the sender or recipient of the standing or changed condition of his message, and as time is always the most important element in the transmission of press messages, any delay that occurred to that class of business at this city was sure to cause friction between the cable companies and their press patron particularly affected. Cable companies were bound to obey the Government in the person of the censor, and by like order were not privileged to give any information as to failure or delay in service of the censored condition in which messages were sometimes delivered.

But the utmost care was exercised at all times to guard against abuses of this authority, undoubtedly possessed by the Government, over all classes of business, and the censor can recall at this moment not a single instance from among the patrons of the cable companies, whether they were commercial houses, press association managers, foreign newspaper correspondents, or private individuals, where those concerned were reputable, in good standing, and loyal Americans, of any complaint being made of the censorship exercised during the late war.

This report can not be closed without an expression on the part of the censor of his sense of obligation and appreciation of the cordial cooperation extended to him at all times by the officers of the various cable companies, especially the managers and operators at the office of the Haiti Cable Company, with whom he was brought hourly for many weeks in peculiarly intimate relations in moments most trying to all concerned. He bears hearty testimony here to their unvarying loyalty at all times, giving proof of a rarely unselfish devotion to interest only their own by reason of their citizenship, and alone making it possible, as he never otherwise could have done, for the censor to carry out his directions with the measure of success or of satisfaction he may have given to the Government to whom he was responsible.

Respectfully submitted.

GRANT SQUIRES,

Second Lieutenant, United States Volunteer Signal Corps, Military Censor.

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REPORT OF THE CHIEF OF ORDNANCE.

WAR DEPARTMENT, ORDNANCE OFFICE,

Washington, October 1, 1898.

SIR: I have the honor to submit the following report of the principal operations of the Ordnance Department during the fiscal year ended June 30, 1898, with such remarks and recommendations as the interests of this branch of the military service seem to require

The fiscal resources and expenditures of the Department during the year were as follows, viz:

Amount in the Treasury to the credit of the appropriations on June 30, 1897	\$7, 213, 865. 74
Amount in the Treasury not reported to the credit of the appropriations on June 30, 1897	340. 52
Amount in Government depositories to the credit of disbursing officers and others on June 30, 1897	614, 267. 00
Amount of appropriations for the service of the fiscal year ended June 30, 1897, including the appropriation for armament of fortifications in the act approved March 3, 1898	21, 504, 592. 21
Amounts refunded to ordnance appropriations in settling accounts during the fiscal year ended June 30, 1898	472, 325. 51
Gross amount received during the fiscal year ended June 30, 1898, from sales to officers, from rents, from collections from troops on account of losses of or damage to ordnance stores, from Chicago, Rock Island and Pacific Railroad Company, from powder and projectiles (proceeds of sales), from sales of condemned stores, from testing machine, and from all other sources not before mentioned	53, 392. 21
Total	29, 858, 783. 19
Amount of expenditures during the fiscal year ended June 30, 1898, including expenses attending sales of condemned stores, exchange of powder, etc	7, 348, 795. 92
Amount deposited in Treasury during the fiscal year ended June 30, 1898, as proceeds of sales of Government property	15, 769. 27
Amount turned into the surplus fund on June 30, 1898	187. 73
Amount in Government depositories to the credit of disbursing officers and others on June 30, 1898	1, 884, 517. 60
Amount transferred from ordnance appropriations in settling accounts during the fiscal year ended June 30, 1898	814, 751. 16
Amount in the Treasury not reported to the credit of appropriations on June 30, 1898	1, 402. 25
Amount in the Treasury to the credit of appropriations on June 30, 1898	19, 793, 359. 26
Total	29, 858, 783. 19

CLERICAL FORCE.

In accordance with the requirements of the act of Congress approved March 2, 1895 (vol. 28, p. 808, Stat. at L.), I have the honor to report that with the aid of the additional temporary force allowed this office the greatly increased clerical work has been promptly performed.

I have estimated for the same additional temporary employees for the remainder of the present fiscal year, also for the year ending June 30, 1900.

ARMING AND EQUIPPING THE MILITIA.

The act of Congress approved February 24, 1897, provides—

That the Secretary of War is hereby authorized to issue to the governors of the several States and Territories such number of Springfield breech-loading rifles, caliber forty-five one-hundredths of an inch, as are now required for arming all of the regularly organized armed and equipped militia (generally known as the National Guard) of each State and Territory that are not already supplied with this arm: *Provided*, That each State or Territory be required on receipt of the new arms to turn into the Ordnance Department, United States Army (without receiving any money credit therefor), an equal number of the arms now in its possession, except its Springfield rifles, caliber forty-five one-hundredths of an inch.

The issues during the fiscal year, under authority of the above-cited law, were as follows, viz:

To—	Rifles.	Carbines.	To—	Rifles.	Carbines.
Alabama	359	29	Maryland	68	.....
Arizona	50	.....	New Mexico	100	50
Delaware	91	.....	New York	3,537	360
Florida	352	.....	Tennessee	40	.....
Illinois	3,807	.....	Vermont	460	.....
Kentucky	270	.....	Total	9,334	439
Minnesota	200	.....			

These, added to the issues made under the same law during the previous fiscal year, make the total issues up to date 33,898 rifles and 1,030 carbines.

Congress at its last session took necessary action to enable this Department to comply with section 3 of the act of February 24, 1897, providing for sales of ordnance and ordnance stores to the States, as recommended in my last report. The section of the act of February 24, 1897, referred to above is as follows, viz:

SEC. 3. That any State or Territory may, in addition to the stores and supplies issued under the provisions of this act and the act of February, eighteen hundred and eighty-seven, purchase for the use of its national guard or reserve militia, at regulation prices for cash at place of sale, such stores and supplies from any department of the Army as, in the opinion of the Secretary of War, can be spared.

The ordnance and ordnance stores procured for the Army under the appropriations made by Congress were barely sufficient for the purposes for which they were procured, and it had been found that practically none of them could be spared for the sales contemplated in the above act. To meet the difficulty Congress, in March, 1898, enacted a law providing that—

The cost of all stores and supplies sold to any State or Territory under section three of the act approved February twenty-fourth, eighteen hundred and ninety-seven (page five hundred and ninety-two, volume twenty-nine, Statutes at Large), shall be credited to the appropriation from which they were procured, and remain available to procure like stores and supplies for the Army in lieu of those sold as aforesaid.

In consequence of the war, not many States have taken advantage of the opportunity now afforded for the purchase of stores; but, notwithstanding this, the sales during the three months intervening between the enactment of the law and the close of the fiscal year amounted to \$8,150.50.

When the first call for volunteers from the States for the war with Spain was made, it was decided to take as many of the regiments of the National Guard as possible already armed and equipped by the States.

This Department took steps at once to ascertain and record correct lists of the ordnance and ordnance stores thus furnished by the States to organizations mustered into the United States service, with the view of submitting the matter to Congress at its next session, for such action as Congress may deem desirable for restoring to the States the ordnance and ordnance stores so furnished and turned over to the United States, or of having Congress authorize a credit to the allotment for arming and equipping the militia of each State equivalent to the value of the stores so furnished.

When the mustering out of volunteer troops commenced, the gov-

ernors of some of the States represented that they were in great need of State troops, that supplying troops mustered into the service of the United States had stripped the States of all ordnance and ordnance stores, and requested that some at least of the regiments mustered out might be authorized to retain their arms and equipments. This was authorized by you and is being done, and the stores so retained by the States are charged against the credit of the States for stores furnished by them to the United States.

Volunteer organizations were mustered into the United States service in so many places and with so much haste that it was not practicable to obtain in all cases as correct lists of stores furnished by the States as is desirable. Again, the manner in which troops have been mustered out has caused delay in ascertaining what stores the States have retained. The preparation of a correct statement of the credits and debits of each State for these stores involves much labor, and can not be completed until the returns from all the company commanders of the volunteer troops are received. It is expected, however, that the statement can be completed and be ready to be submitted to Congress at its next session.

I think the question as to the wisdom and advantage of having States furnish arms and equipments to troops mustered into the United States service should receive careful consideration. Of course the reason for adopting this method is the supposition that the State troops, being already armed and equipped, would, by retaining their arms and equipments, be ready for immediate service. This is based on the supposition that the arms and equipments are in good condition and ready for immediate service. This expectation was generally not realized during the present war, and it is a question whether troops would not have been ready for service at least as quickly by leaving their ordnance and ordnance stores with the States and by equipping them with new stores furnished by the United States in perfect condition and ready for active service. Some organizations might not have been ready for service as soon, and others would have been ready more quickly. In consequence of the delay that occurred in ascertaining whether their arms and equipments were in fighting order, and the further delay incident to inspection, condemnation, and reequipment, it would have enabled the War Department to know with more certainty when the troops could be ready.

It would also have avoided the great difficulty that will now occur in settling, satisfactorily to both parties, accounts between the States and the United States. It is apprehended that there will be difficulty in arranging this settlement. States desire the return of new stores in lieu of unserviceable stores furnished by the States, and it is already known that even where new arms were furnished to volunteer troops these arms were in some cases nearly worthless from lack of care while in the hands of troops, and the States are unwilling to receive them.

Also, as indicated above, statements from adjutant-generals of States which reached this Department indicated that stripping the States of all ordnance and ordnance stores during protracted war might be very objectionable. There were cases where States applied to this Department for an issue of arms and equipments for defensive purposes immediately after the State troops had left, and they had no balance of the appropriation for arming and equipping the militia to their credit to which such issues could be charged.

STATEMENT OF SOME OF THE PRINCIPAL OPERATIONS OF THE
DEPARTMENT DUE TO THE WAR WITH SPAIN.

There will be given further on in this report the usual brief statements of some of the principal operations of the Ordnance Department, and of the work performed at the arsenals and other ordnance establishments. These operations have been largely increased during a portion of the year, in consequence of the war with Spain. There is given here a brief summary of some of the principal of these that were caused by the war, and some conclusions based upon them.

The greater part and most important of these operations have been in consequence of the attempt to increase rapidly our coast defense. The need of this was impressed upon the Department, and so great was the need that the work was actually commenced, in advance of the appropriations therefor, in February. The first appropriation for the work was obtained about the middle of March, and from that time until the present writing the work has been pushed with all possible dispatch and is still in progress. There are statements further on of what was accomplished. As was well known, great results in work of this kind can not be accomplished suddenly, but I feel warranted in saying that all was accomplished that the resources of the country admitted.

Later, upon the first call for troops, on April 23, 1898, the duty was imposed upon the Department of arming and equipping almost immediately a large army of infantry, cavalry, and artillery. In consequence of my own experience of the difficulties encountered in suddenly arming and equipping large armies during our civil war, the subject of preparation for meeting such an emergency, should it arise again, has received much attention. Some account of the experience of the Department in the same work during the present war is not only interesting, but important for reference, should a similar emergency arise in the future.

So long as the principal dependence in this country in time of war is a large volunteer force, newly levied, it is impracticable to keep on hand the necessary large supplies of cavalry, artillery, and horse equipments, as these in the course of a few years will not only deteriorate, but will have to be materially modified to keep pace with improvements. The major part of such material can, by taking advantage of the resources of Rock Island and the other arsenals and the numerous private establishments capable of producing it, be supplied as rapidly as troops can be raised, mustered into the service, and prepared for campaign. There should, however, be on hand the complement of field and siege artillery with carriages and a portion of the harness required for an army of 500,000 men. Such guns and carriages can not be turned out in large numbers until about six months after initiating the work.

If sufficient of this material were on hand for an army of 500,000 men, the resources of the Department and of the country would provide additional field and siege material rapidly enough to supply the troops as raised, and to make up for losses which would occur in battle. A supply of ammunition for field and siege guns sufficient for three months should at all times be kept on hand. By the expiration of that period the plant that is now established at Frankford Arsenal, and which ought to and which it is expected will, be installed at Rock Island Arsenal, would be capable of meeting all requirements.

The question of the supply of small arms presents difficulties. The

changes and improvements in arms are such as to make it practically impossible to keep even large standing armies armed with the latest and best arms. A nation that does not keep a standing army ready equipped is still less likely to undergo the great cost of changing arms in store in order to be always ready to furnish the latest and most improved patterns immediately. When the model of the infantry rifle is changed, however, it is believed that a supply of at least 100,000 stand should be procured by purchase or manufacture at the earliest moment that the resources of the arsenals and the country can produce them, and that machinery should be installed at Springfield and Rock Island for their production at the rate of 2,500 stand per day. After a sufficient reserve is established some 30,000 per year should thereafter be manufactured, as experience has proved that this number will add to the supply required as rapidly as is desirable, provided always that machinery has been installed for rapid increase of the output whenever war is anticipated.

The machines principally used in the manufacture of small arms are of commercial pattern, and while the special cutters and other tools actuated by the machines may change with the pattern of the gun, the power, the shafting, and the general arrangement of the machines themselves will change generally much less rapidly than the patterns of the guns.

Policy has here to give place to what is reasonably practicable. Our experience during the present war has shown that it is very dangerous to rely upon the plan of procuring the very best arms quickly from abroad. Although many arms can be purchased, the very best are not likely to be on hand, and can not be produced in time even if they could be purchased and delivered in this country.

I believe the policy of relying upon our own resources is the best. If the plant for the manufacture of arms can be introduced at Rock Island, as in my judgment it should be, we would then have a capacity of at least 2,500 rifles per day. The advantage of this plan is that the arms thus produced would be always of the latest and best patterns. With a sufficient supply on hand for immediate issue, the above resources, together with the resources of private companies, would supply troops as fast as they could be raised, organized, and disciplined, and unless some other method of raising armies than any that is now known is adopted this is sufficient. It may not meet *theoretical* demands, but it meets *practical* demands. Also, in my judgment, when changes of pattern are deemed wise it should not be expected that Congress will provide for changing at once the reserve arms kept on hand, and it must always be anticipated that patterns not the very latest may sometimes have to be issued for temporary use until others can be manufactured or procured.

It may be stated briefly that the Department was able, with strenuous efforts, to meet the demand for small-arm ammunition, although the additional plant now being installed at the Frankford Arsenal was sorely needed. With the large plant for the manufacture of this ammunition installed at the Rock Island Arsenal, as is contemplated in the plans for that arsenal, the ability of the Department to meet all demands for this ammunition in any war that can be anticipated may be relied upon.

Attention is especially invited to the experience of the last few months in attempting to provide quickly a coast defense. It is believed to be impracticable, and we will always be forced in any emergency to rely upon what has been prepared in time of peace. I think it fair to

state, though not in the way of complaint, that this has been urged upon Congress each year for the past ten years.

The situation is very simple. A plan has been adopted for providing a complete coast defense. With the present facilities of the Department this work can be carried on economically and in the most efficient manner in such a way as to complete the present plan in about seven years. Estimates ought to be submitted each year for so much of the work as the facilities for its production will permit. It rests with Congress to determine how much of the work can be provided for each year consistently with the resources of the country. But the work can not progress faster than the appropriations provide for.

The estimates for coast defense made by this Department to Congress have frequently not been equal for the different parts of the armament for which appropriations were made. When it has been found necessary to reduce the amount of the estimates, care has been taken by this Department, when the question has been submitted to it, to leave those which relate to material that is procured with difficulty as nearly up to the original estimates as possible. For instance, it requires a long time to procure forgings for guns and to finish and assemble the guns, as but two establishments can furnish the necessary forgings, and but one in addition to Watervliet Arsenal has finished and assembled guns of all calibers. Seacoast carriages are of considerable weight and require some time for their completion, yet carriages can be supplied by several different manufacturing establishments, and can be procured much more rapidly than guns.

Few establishments in this country now manufacture armor-piercing projectiles and smokeless powder, yet both these articles can be procured more rapidly than either guns or mortars. For these reasons, at the outbreak of the war the Ordnance Department had on hand more guns than carriages, more guns and carriages than projectiles, and more projectiles than powder. When the necessity arose for procuring deficient materials as rapidly as possible, the Department found that it was enabled by contracts to increase the supply of gun carriages, projectiles, and powder rapidly enough to complete the amount of armament that was practicable, and limited and fixed by the guns that were on hand.

It is probable that there must be added to the plans and estimates for the coast defense some provision for the defense of added possessions.

The difficulties of the Department have been enhanced and multiplied since last February by the lack of officers. The work of the Ordnance Department requires officers not only educated for the specialties involved, but with special training and the knowledge that can be obtained only by experience on the work itself. I believe that the number of officers of the Department was not greater than was required for its duties prior to the commencement of active operations on the coast defense, about nine years ago. These operations not only increased the labors of officers at ordnance establishments, but required at least ten additional officers for the inspection of contract work at private establishments, for the operations of the Sandy Hook Proving Ground, and for the preparation of plans. When the increased operations on the coast defense commenced last February, it was practically impossible to provide the number of inspecting officers required for the great increase of contract manufactures, and these inspecting officers had sometimes from three to six establishments under their charge, where the interests of the service required one officer at each place.

Again, when the equipment of the Army commenced, in April, the difficulties were again increased. The operations and labor at the ordnance establishments were multiplied many times and required more officers, who could not be supplied, and the necessities of the service demanded imperatively officers for duty with troops in the field. Only six could be supplied for the latter duty, although the service demanded more, and to obtain these six the number at the ordnance establishments had to be still more reduced. The Chief of Ordnance was compelled to give up two of his assistants in his office at a time when the labors of the office were multiplied many times.

Congress provided for a small increase of the Department at its last session.

SMALL ARMS.

Much has been stated in public print derogatory to the caliber .45 Springfield rifle, with which a large portion of our army is equipped. Many, if not most, of these statements appear to have been made thoughtlessly or by persons without such knowledge of the matter as would enable them to give a valuable opinion. Absence of exact knowledge appeared generally to be coupled with absence of careful and fair consideration of the subject. It is not claimed by this Department that the caliber .45, single loader, is equal to the United States magazine rifle, caliber .30, which replaced it; but it is claimed that it is by no means as inferior as has been asserted.

The fact that these caliber .45 arms were on hand and available at once and that no others so good could be procured in time for the emergency, and the fact that a large portion of the troops first called out were already armed with the Springfield rifle, thereby making it natural that their armament should be completed with the same arm, have seemed to cause the hasty conclusion that as the use of the arm was thus apparently forced, it must therefore be a *poor* arm; hence the criticism. It should be stated, first, that the caliber .45 Springfield rifle is one of the best of military rifles. It is the arm which has been used by our Army in all our Indian wars since its adoption in 1869, and its excellence as a military rifle and its superiority over all other nonmagazine rifles has been attested by the most competent officers who have used it during so many years. Its simplicity and its security from getting out of order under the roughest usage make it especially valuable to new troops until the officers of such troops can acquire such experience and facility in the use, care, and repair of arms as to enable them to take care of and use the more complicated magazine arm to good advantage in actual service against an enemy and under the exposure and difficulties incident to an active campaign.

Stress has been laid upon the fact that the magazine arm could be fired more rapidly than the Springfield. As the latter can be fired fourteen rounds per minute, and as a soldier who fires efficiently to hit in battle must determine the range, set his sight, select the object to be fired at, and take correct aim, and can not therefore usually fire more than one round per minute, this is a matter of minor importance. That is, the arm can be fired, say, ten times as fast as it should be fired in battle if efficiency and execution are properly attended to. The time required for charging the magazine leaves the magazine rifle no material superiority in this respect. The advantage of the magazine arm in respect to rapidity of fire consists in the fact that there are always five cartridges in the magazine which can be fired more quickly than

five shots from the single loader, should occasion make this necessary. Such occasions are exceedingly rare.

Much has been said inconsiderately of the (supposed) short range of the Springfield. Its extreme range—2 miles—is practically the same as that of the magazine rifle; and at this range the shock or blow from its bullet is greater than that from the lighter bullet of the magazine rifle—a matter of importance in long-range firing.

Many interesting unofficial statements have reached this Department of the inefficiency of small caliber bullets fired at modern high velocities, because of their failure to produce the shock or effect necessary for stopping or disabling an enemy, and of the greater efficiency of the caliber .45 arm in this respect. But these statements have not such force or proof as to change the conclusions arrived at from the exhaustive experiments to determine this matter made at the Frankford Arsenal in 1893 and reported in my annual report of 1893.

The advantages of the magazine rifle are comprised, then, in the following three points:

First. The reserve of five cartridges in the magazine available for slightly more rapid firing on rare occasions.

Second. The very important advantage of its flatter trajectory.

Third. The lighter weight of its ammunition enables the soldier to carry more cartridges (100 caliber .30 cartridges are equal in weight to 60 caliber .45 cartridges).

The value of the first of these advantages has been discussed.

The disadvantage of the Springfield on the other two points is inherent and can not be avoided. The amount of the disadvantage can be estimated by all officers, and will be estimated differently generally.

The very serious objection to the Springfield rifle in its limited use by the small number of troops armed with it at the battles in the vicinity of Santiago was the fact that it was not supplied with smokeless-powder cartridges. In fact all the criticisms, both official and semiofficial—by officers—which have reached me, are confined to this one point, and it is possible this fact only has caused the hasty condemnation of the arm. This disadvantage is not inherent to the arm. The reasons for the supply of charcoal-powder ammunition will be explained further on, under the head of ammunition. It has since been overcome, and smokeless-powder cartridges are now supplied.

It has been stated, and I believe by officers of high rank, that the Ordnance Department considered the Springfield rifle the equal of the magazine rifle; and, based on this statement, an onslaught has been made on the Department.* The statement is not true, and the onslaught based on the statement is unfair and unjust. What is more important, these attacks have caused an unjust opinion and estimate by the public and the Army of the value of the Springfield rifle, injurious to the public service. On this account I have deemed it desirable to state at some length the merits and demerits of the Springfield rifle.

At the commencement of hostilities the Department had on hand a large and ample supply of these arms. As has been stated, the National Guard was already armed with it, but excellent and natural as were the reasons for its issue, it would not have been issued, and some other arm would have been provided had the Springfield rifle been

* A possible reason for these statements may be that the officers of the Department, in answering attacks made upon the Springfield rifle, have cited the well-known fact that for many years after the adoption of the magazine rifle officers—excellent officers—of both our infantry and cavalry have claimed that the Springfield rifle was much the better arm of the two.

worthless, as has been stated, or, rather, had it not been an excellent and meritorious military rifle.

At the commencement of hostilities the Department had on hand a considerable reserve of the magazine rifles, and at once commenced increasing its plant for their manufacture, and forced their manufacture to the utmost. From this reserve and these manufactures, under your approval and instructions, it was proposed to change the arms of regiments at the front, or ready to engage in active operations against the enemy, to the more valuable magazine rifle, as fast as was found to be desirable and practicable. (You have since published a General Order—see G. O. 144, A. G. O., September 16, 1898—providing for these exchanges.)

The present rate of production of the magazine rifle will not only provide for the above exchange of arms as rapidly as the interests of the service require, but will also rapidly accumulate a large reserve. There will also be a large reserve of Springfield rifles (supplied with smokeless-powder cartridges) available for arming large armies should any sudden emergency, not now anticipated, require it. These arms are being cleaned and repaired and made fit for service as they are turned in by the Army.

The reports of officers who were in the Santiago campaign and the reports of officers to the special board at Montauk Point attest and confirm the excellence of the caliber .30 magazine rifle in all respects. Notwithstanding rough usage and unusual exposure in a bad climate under circumstances which prevented the exercise of the usual care in preserving the arm, the breech mechanism worked smoothly and there were practically no failures.

The Department has supplied all other small arms required, namely:

Carbines, revolvers (caliber .38, double-action, and caliber .45, Colt's), sabers, and swords.

SMALL-ARM AMMUNITION.

Investigations at different times during the last few years had led me to conclude that there was in the country capacity for the manufacture of small-arm cartridges sufficient to meet the demands of any emergency that could be anticipated. This expectation has been realized, and a greater amount of this ammunition was furnished than was needed, and more than would have been needed, even had the war been protracted. Estimates for this ammunition sent to the Department were evidently based on exaggerated estimates of its consumption in modern breech-loading guns, as compared with the consumption in the muzzle-loading arms in use during our civil war. As has been stated, efficient firing requires care and deliberation and does not admit of rapid firing. The rapid firing obtainable from modern arms occurs only at short range, during very short periods, and on rare occasions.

Notwithstanding these exaggerated estimates, however, the Department was able to meet all demands. The accomplishment of this involved extraordinary efforts and hurried increase of plant under adverse circumstances, and consequent increase of cost. With the great stock of this ammunition accumulated at the close of the late war, and the increase of plant established, the Department was in condition to meet any demands that could then have been anticipated. Much of the expense and difficulties encountered would have been avoided could the Department have had the use of the increase of plant which is now being installed at the national small-arm cartridge factory at Frankford Arsenal.

A large improved building was constructed at this arsenal many years ago for this purpose, and has been awaiting the installation of the machinery. Estimates for this machinery have been submitted to Congress from year to year, but the necessary appropriation was not obtained until the last session of Congress. This installation of new machinery is now in progress, and will rather more than quadruple the capacity of that establishment. This plant forms an important and most necessary part of the plans of this Department for meeting the extraordinary demands of war. The total number of small-arm cartridges provided by the Department, of all kinds—revolver, rifle, and carbine—amounted to something over 90,000,000.

INFANTRY, CAVALRY, ARTILLERY, AND HORSE EQUIPMENTS.

For many years the annual appropriations for these equipments have been barely sufficient, with the utmost economy, to meet the annual consumption of the Regular Army. In fact, it has sometimes been impossible with these appropriations to supply all that the best interests of the service demanded. There was, therefore, only a small supply of these equipments on hand at the commencement of the war.

It has not been the plan of the Department, however, to keep a large supply of these equipments on hand. Their rapid deterioration and frequent changes of pattern would make it necessary to renew the equipments so frequently as to make this plan practically impossible. Even if it were desirable, the cost of the renewal would be so great that it is not believed that the large appropriations necessary for the renewals could be obtained.

Instead of keeping these equipments on hand, it has been the plan of the Department, therefore, to be prepared to manufacture and supply the equipments as fast as armies could be raised. A portion of the Rock Island Arsenal was constructed for this purpose. It is important to determine from our experience in this war whether this plan is feasible for future wants.

There were difficulties and delays encountered in carrying out the plan in this war which I think it is fair to conclude would not obtain in future wars. Although the buildings were available, the plant required had not been installed therein because of the failure to procure appropriations therefor.

First. The preparation of these facilities delayed the work materially.

Second. A warning of not less than one month, and generally two months, or more, may be counted upon for providing these equipments for volunteers before they are called out. In this case there was no time given for this preparation.

The first appropriation for providing equipments in the Volunteer Army was obtained only the day before the first call for troops was made. (There had been two small allotments made from the appropriation for national defense a short time before, for providing some artillery harness and equipments necessary for the increase of the Regular Army).

Third. Notwithstanding the above delays, the Department made provision for meeting the call for equipments for the first call for troops as fast as they were or should have been anticipated. This call was to be filled mainly or largely with troops from the National Guard of the different States, and it was understood that these troops were well equipped, and not very much would be required. The plans for providing equipments at that time were based upon this supposition. This

expectation, however, was not realized. A large portion of the equipments were not in fit condition for efficient field service, and they had to be renewed.

All of these causes, especially the latter, combined to increase the difficulties of meeting the demands made upon this Department for these equipments. Without any of these causes the Department could have been a month or six weeks ahead of all the demands that were made for equipments.

It was not possible, therefore, in all cases to fill requisitions as fast as they were received. The supplies were generally more than sufficient, however, for equipping regiments as fast as they were drilled, organized, and prepared to take the field, and the commanding generals of organization camps were asked to designate the regiments they desired to have equipped first. This request was not sufficiently complied with, and supplies shipped to one regiment were sometimes diverted to another and this Department not informed of such diversion. In some cases equipments were taken away from regiments that had been supplied and given to others and this Department not informed of it. This resulted in duplicate shipments to the same regiments. Most of the failures of organizations to receive their equipments in time were caused by various delays after the stores had been shipped. Knowing that expeditions were to sail from Tampa and from San Francisco, the Department insisted upon keeping at these depots such a supply of equipments as would insure fully equipping before they sailed all organizations that might reach those points not fully equipped.

A review of the whole subject indicates that the plan of providing equipments for large armies raised suddenly is feasible, and that these equipments can be supplied as fast as the troops can be raised, organized, drilled, and prepared to receive their equipments.

The mess outfits would generally be required as soon as troops are mustered in, and these can be supplied at any time as fast as they can be required.

Much credit is due to the commanding officer of the Rock Island Arsenal for his vigorous and efficient labor in installing the plant at that arsenal and providing these equipments. Attention is invited to his report, (Appendix 2). The plant was installed and the number of employees engaged on the work was increased from about 400 on April 13 to about 2,900 on August 31, 1898. On the latter date, the Department was turning out about 6,000 sets of infantry equipments per day. The work was commenced on April 13 and pushed with all possible dispatch and in advance of the appropriations made by Congress in the two deficiency bills of May 31 and July 7, 1898.

Contracts were also made with private parties to manufacture equipments. It must be borne in mind that these equipments are not articles of commerce and private contractors were entirely ignorant of mode of manufacture, excellence of workmanship required, sources from which materials could be obtained, etc. In consequence of this they were slow in deliveries, often weeks after the dates of deliveries promised in contracts, and these failures were anticipated at the time the plans were made.

The item of these equipments most difficult to procure as rapidly as was desired was the cartridge belt. The service belt was woven and its production required special looms, and they had been manufactured by one company only. The small capacity of this company was only sufficient for meeting the annual demand of the Regular Army. The com-

pany at once commenced putting in new looms and multiplying its output, but this required several weeks and the result was totally insufficient for meeting the demand.

Other patterns or modes of manufacture were devised and other companies took up the work, but this also consumed time. Most of the belts thus produced were entirely serviceable in meeting service requirements, but were not so handsome as the regulation belt with which the Regular Army had been equipped, and this caused some dissatisfaction in some cases. The impossibility of meeting the sudden and great demand for these belts at one time caused the purchase of a limited number of inferior pattern for temporary use until others could be supplied. It became necessary to issue a few of these, however, but they were soon replaced by others. The total output of the belts of satisfactory patterns on August 15, 1898, was 7,500 per day. From April 21 to August 31 the Department produced about 250,000 sets of infantry equipments and about 26,000 sets of horse equipments. There were more than the above of some items of the sets and less of others.

OPERATIONS ON ARMAMENT OF FORTIFICATIONS CAUSED BY WAR WITH SPAIN.

On the outbreak of hostilities there was an urgent demand from communities along our whole seaboard for an increase of our seacoast defenses. This Department received allotments from the appropriation for the national defense, the appropriations in the deficiency bill, and later, the appropriations in the regular fortification act. Urgent efforts were made to meet the demand for an immediate increase of the armament of fortifications.

Not much could be done to hasten deliveries of the larger seacoast guns, the time required for the manufacture of forgings and for finishing and assembling of such guns being too great. Night shifts were employed at the gun factory, however, the force increased, and the work on the guns in hand and on the forgings on hand was pushed to the utmost, and the completion of the guns in hand at that establishment hastened. This applies especially to mortars. Attempts were also made to induce the manufacturers who had contracts for mortars to expedite their work, but without material success. Five additional 10-inch guns were obtained from the Bethlehem Iron Company under their contract.

Much more could be done in hastening the manufacture of carriages, and contracts were made at once for carriages to meet the above small increase in the output of guns, but especially for mounting the guns on hand for which carriages had not yet been provided. There were 17 of these carriages under construction at the Watertown Arsenal, and with a large increase of force and night shifts work on these was pushed to the utmost. The Department was able, between the 1st of April and August 31, to furnish and deliver at the fortifications 58 carriages for large guns of all kinds. The work is still in progress and is being pushed as rapidly as possible.

RAPID-FIRE GUNS.

It was possible to accomplish more in regard to these, and emergency orders for their purchase were given as rapidly as satisfactory offers to furnish them could be obtained from both American and foreign manufacturers. Contracts and emergency-purchase orders were given for a

total of 243 guns of various calibers, viz, 6-pounder, 15-pounder, 4.7-inch, 5-inch, and 6-inch. Of these, up to August 31 there had been received and furnished to the fortifications, with their carriages and from 200 to 300 rounds of ammunition for each, 44 guns.

The demand for protection at various points on the seaboard was so urgent that the Department also issued nearly all the siege guns on hand, viz, sixteen 5-inch guns, eighteen 7-inch howitzers, and six 7-inch mortars, for immediate mounting in special fortifications hastily erected by the engineers for their accommodation. There was sent to the fortifications also twenty-two 3.6-inch field guns for the same service. The siege guns were subsequently withdrawn for use with the army in Cuba and Manila.

The Department also supplied powder and projectiles for use in the old 15-inch smoothbore and 10-inch smoothbore guns, 11-inch and 8-inch muzzle-loading rifles, converted, and 100-pounder Parrots, and 10-inch smoothbore mortars, which still remained in the fortifications, to be prepared for using these old pattern guns in case of necessity.

Also to provide for utilizing at once the 8-inch breech-loading steel rifles on hand for which carriages had not yet been provided, the Department altered twenty-one 15-inch smoothbore carriages that were already mounted in fortifications, to accommodate these modern guns. These alterations were made on plans and drawings which had been previously prepared for use in case an emergency might require it. The principal change consisted in providing a new top carriage and in strengthening the chassis of the 15-inch carriage. The order for these alterations was placed April 27, and by July 29 all the parts for twenty-one carriages had been delivered.

While the carriages thus converted were of an old pattern and the maneuvering, as was to be expected, was slower than with the modern carriage, yet the action of the mounts as a whole is quite satisfactory. The conversion was rapidly made, at an expense of only about \$1,000 per carriage, and the chief object gained was the rapidity with which these high-power guns on hand could be installed, as they were placed on platforms already prepared by the engineers for the 15-inch smoothbore guns, which required no alteration.

As a result of the efforts made by the Department there were delivered to the service between April 1 and August 31, 1898, 102 seacoast carriages of all calibers, in addition to the 21 altered, as stated above.

PROJECTILES FOR SEACOAST GUNS AND POWDERS.

When hostilities with Spain were apprehended, the supply of powder and projectiles for our coast defense was inadequate. It was about one-fifth the supply that I deemed it prudent to have on hand. It may be of advantage to state the reasons for this deficiency, as their consideration may have effect to prevent such a deficiency, under similar circumstances, in the future.

This Department has submitted to Congress from year to year estimates for the powder and projectiles it deemed prudent to provide. The appropriations for this ammunition have been generally about one-third to one-half (in one case about one-tenth) of the estimates (or very small in comparison with the estimates). The subject has received much attention from committees of Congress that have investigated it. In hearings before committees the fact has been elicited that the time required for the production of the guns and carriages was so great that not much could be accomplished in providing

them after an emergency should arise until the emergency would probably be past. It was decided, however, that the powder and projectiles could be produced more quickly, and as it has been deemed necessary to reduce appropriations it is understood that the opinion has prevailed that the appropriations for the powder and projectiles might be deferred or reduced to small amounts.

As soon as attacks on our harbors were apprehended the projectiles and all the powder on hand, for whatever purpose procured, were prepared for service, the greater part was issued at once to the fortifications, and the rest was held at central points to be shipped when required to points where attacks were apprehended. Much of the powder on hand had been procured for experimental firings, tests, proof of guns, carriages, etc., and also for artillery practice by the Army. Funds for procuring this ammunition were soon available from the general appropriation for "National defense," and, subsequently, from the deficiency appropriation bills. In anticipation of these appropriations, and before they were made, measures were taken to procure a supply of the ammunition. The powder manufacturers were conferred with and induced to enlarge their plants. On invitation the projectile manufacturers came to my office, the necessities of the Government were explained, and they were induced to make large additions to their plants, in some cases to employ outside manufacturing establishments and to thereby multiply their capacity.*

The results accomplished are shown in tabular statements further on. The results have shown what was known before, and that is that although modern steel projectiles can be produced more quickly than guns and carriages, the special plant required for their manufacture and the difficulties inherent to such manufactures that must be overcome, and which require experiment and experience, are such that these plants can not be produced quickly enough to meet emergencies; and as they are special plants, not well adapted to other work, the cost of great plants to be used spasmodically and lie idle most of the time would be too great. The only wise course is to keep the available plants continually employed in providing each year enough projectiles for supplying and keeping on hand the requisite complement for each gun of the coast defenses, as proposed in the estimates submitted.

For several years this Department had been experimenting on smokeless powders for seacoast guns, and had completed the determination of the specifications and requirements for the smokeless powders for nearly all the seacoast guns and mortars. Some of the powder manufacturers that had been engaged in the production of these experimental powders had small plants for their production. It was impossible, however, to produce the powders fast enough to meet the emergency, and in some cases experience in their use was necessary for adapting them to all the requirements of the service. All the companies, however, were ready at once to take up the manufacture of the carbon powders, and as the requirements for this were simpler, they could expand their plant for this production more rapidly, and for a time this Department therefore devoted all its energies to procuring a sufficient supply of the carbon powders. Later, and as fast as possible, the manufacture was changed to smokeless powders.

* One company—the Midvale Steel Company—expended about \$115,000 on its increase of plant, and increased its output about two and one-half times. Some new companies have undertaken the manufacture of projectiles, but so much time was required for establishing plant and making experiments that they have not yet made material deliveries.

It should be stated, however, that smokeless powder only was manufactured for field and siege artillery. The fact that the field and siege artillery was to be employed was not determined until about the time that war was declared, and there were no funds available for procuring ammunition for these guns before that time. The preparation of smokeless powder ammunition for these guns commenced at once, but it was necessary to issue immediately the ammunition on hand for the batteries that were sent to the front, and as this was all charcoal-powder ammunition, it accounts for the fact that only this black or charcoal-powder ammunition was generally used in actual service against the enemy. The amount of powder on hand and available for ammunition of all kinds—seacoast, field, and siege artillery and for small arms—was 404,278 pounds. The amount produced from the time when preparations for hostilities commenced until August 31 was as follows:

	Pounds.
For artillery	870,245
For small arms	500,000

All that was consumed in the manufacture of small-arm cartridges is included in the above, because, although a portion of this was consumed by the small-arm cartridge manufacturers who were manufacturing under contract, the Department was compelled to make arrangements with the powder manufacturers for supplying the powder.

The above should not be taken to indicate what would be the capacity of our powder manufacturers in case of future emergency, because—

First. As has been stated, when this emergency arose, their plants were in a transition state from charcoal to smokeless powders; and

Second. The great increase of plant which has now been made, and which could reasonably be counted upon for future emergencies, was not available, or not much of it, until the emergency had passed.

The number of seacoast projectiles procured from the time when preparations for hostilities commenced to August 31 was 5,331.

For the same reasons given above in regard to the production of powder, these figures do not indicate the increase of capacity of the projectile manufacturers. Much of the increase of plant was not available until about the time the emergency had passed, and then pressure of work on nights and Sundays was given up. The contracts that were made under existing appropriations give the complement of projectiles that it is deemed prudent to provide for all of the seacoast guns that will be mounted by June 30, 1899.

The above statements do not show the capacity of the powder and projectile manufacturers of the country, because at the same time that they were increasing their output for this Department, they were increasing their deliveries to the Navy, and as the demands of the Navy were most imperative, the supply of that Department generally had precedence.

FIELD AND SIEGE ARTILLERY.

Field artillery.—Funds were not available for enabling the Department to take any action for increasing field artillery for armies taking the field until April 21, 1898. The number of batteries that could be equipped was absolutely fixed by the number of modern field guns on hand. There were not enough carriages and harness even for these guns, and the manufacture of the carriages and harness was at once commenced at the Rock Island Arsenal and pushed to the utmost, and the same action was taken in regard to implements and equipments of

all kinds at this and other arsenals. All the guns on hand at different schools and academies were called in, and later, all the guns that could be obtained from the States were called in. The former were generally without caissons or battery wagons and forges, and harness.

With the guns and carriages on hand the Department was able to increase the number of guns of ten regular batteries from four to six, and provide them with the necessary harness for increasing the necessary number of horses from four to six for each carriage and caisson, and also to entirely equip the four new batteries of the Sixth and Seventh Artillery. With the additional guns remaining on hand and those called in from the States and military schools, and the manufactures of caissons, carriages, battery wagons and forges, harness and implements and equipments of all kinds, the Department was able to equip sixteen volunteer batteries under the first call for troops before the end of July, and was equipping the remaining volunteer batteries as fast as they were ready to receive their equipment. In the meantime the manufacture of new guns was in progress, and the output was quickly increased to three per week. The output of carriages was practically increased to three per week.

By August 20 the material for equipping the 30 volunteer batteries was completed, and from that time, had the war been protracted, the Department would have been able to arm and equip a 4-gun battery every ten days.

The regular batteries and the volunteer batteries which took the field were equipped at once.

There was a shortage of harness at the outbreak of the war, but the resources of the Rock Island Arsenal enabled this to be made up rapidly enough to keep pace with the completion of the carriages and caissons. Four regular batteries had just been raised, namely, those attached to the Sixth and Seventh Artillery. These were furnished with 24 guns with their equipments from the 30 which were in progress of completion at the outbreak of the war. This issue was made in ample time to allow the movement of these batteries to Manila and Porto Rico.

There were on hand 24 3.6-inch guns, of which 22 were available for issue. They were provided with carriages. The caissons were nearly completed, but harness was lacking for them at first. These guns, by direction of the Secretary of War, were distributed at eleven different posts from Portland, Me., to Key West, Fla. The main portion of them was afterwards, by direction of the Secretary of War, assembled at Tampa, and caissons and carriages followed soon afterwards.

There were 25 3.6-inch field mortars, with their carriages and platforms, of which 20 had been distributed to various posts for practice purposes. Five were on hand ready for issue at Watervliet Arsenal. These guns also, with the exception of 3 on the California coast and 1 used for experimental purposes at Sandy Hook Proving Ground, were assembled at Tampa, and a part of them were sent with the train to Santiago.

Ammunition was on hand for all of these guns, but the amount was somewhat limited, as at the outbreak of the war there were on hand about

21,000 rounds for the 3.2-inch guns,
3,500 rounds for the 3.6-inch guns, and
3,600 rounds for the 3.6-inch mortars.

The original issue of powders for the field guns, except for the mortars, was charcoal powder, that being on hand at the time, but the

manufacture of smokeless powder for all commenced at once, and all deliveries after the original deliveries were powder of this character.

There were on hand 20 5-inch siege guns completed, of which 2 at the Military Academy were not considered available. Thirteen of these guns were in process of manufacture at Watervliet Arsenal, 10 of which were nearly completed; carriages and limbers were ready for all of these guns; the platforms were not all completed, but were in an advanced stage of completion. Twenty 7-inch siege howitzers were completed and were all available for issue. Twelve were in process of construction at Watervliet Arsenal, 10 of which were nearly completed. Carriages, platforms, implements, and equipments were ready for these pieces, and the platforms were in the same condition as those for the 5-inch guns—that is, they were not entirely finished, but they were almost entirely completed. Several of the howitzers had just been completed, and the siege train, as a train, had never been assembled, owing to the fact that, from the small number of guns comprising it, it had originally been designed to send them to the different artillery posts for drill purposes and for practice.

Before the outbreak of hostilities it was proposed to assemble all the siege cannon and carriages, with their implements and equipments, at a central arsenal, fit them together, and thoroughly prepare them for service. But early in April directions were given to distribute the 5-inch rifles and the 7-inch howitzers to various points on the Atlantic coast, principally along the South Atlantic and Gulf coasts. They were distributed from Georgetown, S. C., to Sabine Pass, Tex. The distribution of the siege guns and of the 3.6-inch rifles was necessary, in order to supplement the defenses of certain posts where rapid-fire guns were projected as a part of the armament but had not yet been received. As it soon became apparent that they would not be required for this purpose, the siege guns and howitzers were ordered to Tampa, Fla., early in May. The first order given was countermanded, and this led to some confusion in the shipment of the material. Two days later, however, the final order was given, and the majority of these completed guns, with their platforms, were forwarded to Tampa, where 4 of the guns and 4 of the howitzers were shipped on a vessel which sailed for Santiago.

Owing to the fact that the train had not been assembled as a whole, and also to the wide distribution of all this material, it was difficult to insure its arriving at Tampa—its destination—under favorable circumstances. In some cases the carriages had not reached the points to which the guns were sent on the coast; in some cases they were packed at the posts in such a manner that they did not arrive on the same cars. There was a lack of proper fitting to the elevating devices for the howitzers, and it was necessary to do some of this fitting at Tampa. The howitzers that were sent to Santiago were without the proper elevating devices, and although this would have made the service of the piece more difficult, yet as the gun is without preponderance there would have been no trouble in securing the proper elevations. This is known from the fact that these howitzers have been fired at the Proving Ground very frequently without any elevating apparatus.

There were on hand 6 7-inch mortars complete with carriages and platforms, and 20 in progress at Watervliet Arsenal, of which 15 were nearly completed.

For the siege material there was on hand about 6,800 rounds of ammunition, the powder being principally charcoal powder, although a small quantity of smokeless powder was on hand. Smokeless powder

only, however, was issued after the first issue was made. In fact, it may be said in general that after the first issues of the ammunition to field and siege artillery, nothing but smokeless powder was thereafter supplied.

ORDNANCE DEPOTS, ISSUES TO TROOPS, ETC.

The greater part of the arms, equipments, and a portion of the ammunition for volunteer organizations was shipped direct to these organizations, wherever they were, as soon as requisitions therefor could be obtained. Most of the field artillery, guns, carriages, caissons, battery wagons and forges, harness, implements and equipments of all kinds, and ammunition was shipped to the batteries—volunteer and regular—direct from the arsenals.

At the commencement of hostilities an ordnance depot was established at Tampa, Fla., for arming and equipping all volunteer organizations in that vicinity, and for arming and equipping all the recruits for the increase of the Regular Army, and for completing the equipment of all troops, both volunteer and regular, that might arrive at that point. Precedence was given any supplies for this depot, in order to insure that all troops departing on expeditions from Tampa might be completely equipped. The depot was also furnished with what was deemed an ample supply of reserve ammunition and stores of all kinds that expeditions might require to take with them for the establishment of field depots in the vicinity of active operations. A large amount of arms, ammunition, and equipments was also sent to this depot for arming and equipping Cuban troops, only a portion of which was issued. This depot was in charge of Capt. John T. Thompson, Ordnance Department (lieutenant-colonel of volunteers), and the work devolved upon the depot was performed by this officer with energy and ability under most adverse circumstances. His report of the operations of the depot is published as an appendix to this report.

Benicia Arsenal was used as a depot, in the same manner as the Tampa depot, for supplying the Philippine expedition with ordnance and ordnance stores of all kinds, and especially for providing with certainty for completing the arming and equipping of all troops that might arrive at San Francisco en route for Manila. This depot was also given precedence in furnishing supplies to regiments that were going immediately on this expedition. The demands on the Department for this expedition were complied with.

On the establishment of the organization camp at Chickamauga, I proposed to establish a depot at that point, but on conference with the commanding general the plan of supplying troops at that camp from the Columbia Arsenal, Tenn., was adopted. The distance of this depot from the camp, the congestion of lines of transportation and difficulties of distributing supplies promptly and correctly, and the necessity stated above for giving precedence for supplies for Tampa and the Philippine expedition, caused delays in equipping troops at Chickamauga.

A depot was established as soon as it became necessary at the Camp Alger organization camp, near Washington, and met all requirements for the troops at this point promptly.

A depot was established at Jacksonville for arming and equipping the Seventh Corps, and met the requirements of the troops at that point and vicinity.

Smaller depots were established temporarily, under the charge of officers detailed from the line of the Army, at Atlanta, Mobile, and other points for supplying troops in the vicinity of those points. More

depots for the above purposes would have been established had the Department been able to furnish officers for taking charge of them.

The difficulties encountered by the Department on account of lack of officers for the management of this part of its business has been previously mentioned.

Depots under charge of officers of the Ordnance Department were also established at Santiago de Cuba and at Ponce, Porto Rico, after the occupation of those places by United States troops. The almost immediate cessation of hostilities avoided the necessity for any considerable issues from these depots. The depots and the officers in charge of them have, however, been of value for the collection and shipment of captured ordnance and ordnance stores, and the stores (especially the large amounts of ammunition) shipped with the armies to these depots in anticipation of active operations.

Some of the principal issues made from April 1 to August 31 are as follows:

Small arms.

Rifle, caliber .30.....	53, 571
Rifle, caliber .45.....	84, 391
Carbine, caliber .30.....	11, 715
Carbine, caliber .45.....	3, 276
Revolvers, caliber .38.....	9, 515
Revolvers, caliber .45.....	13, 363
Sabers.....	8, 045

Ammunition.

Rifle and carbine cartridges, caliber .30.....	17, 428, 568
Rifle cartridges, caliber .45.....	39, 414, 168
Carbine cartridges, caliber .45.....	2, 977, 118
Revolver cartridges, caliber .38.....	1, 468, 181
Revolver cartridges, caliber .45.....	560, 537
Remington cartridges, caliber .43.....	2, 000, 000

Infantry equipments.

Blanket bags.....	140, 668
Blanket-bag shoulder straps, pairs.....	143, 350
Blanket-bag coat straps, pairs.....	145, 670
Bayonet scabbards, caliber .30.....	20, 234
Bayonet scabbards, caliber .45.....	128, 761
Canteens.....	213, 488
Canteen straps.....	234, 062
Gun slings.....	182, 468
Waist belts.....	14, 554
Waist-belt plates.....	15, 628
Noncommissioned officers' waist belts.....	2, 505

Cavalry equipments.

Carbine slings.....	4, 620
Carbine sling swivels.....	3, 279
Pistol cartridge boxes, caliber .38.....	9, 520
Pistol holsters, calibers .38 and .45.....	33, 304
Saber belts.....	14, 399
Saber attachments.....	4, 836
Saber knots.....	13, 491
Canteen straps, short.....	20, 550

Infantry and cavalry equipments.

Cartridge belts, calibers .45 and .30.....	132, 712
Cartridge-belt plates.....	54, 449
Haversacks.....	216, 448
Haversack straps.....	244, 417
Meat cans.....	176, 053
Tin cups.....	202, 619

Knives.....	238, 657
Forks.....	272, 522
Spoons.....	218, 725

Horse equipments.

Saddles.....	21, 712
Carbine boots.....	9, 491
Saber straps.....	13, 159
Curb bridles.....	20, 927
Curb bits.....	19, 786
Halter headstalls.....	16, 858
Halter straps.....	6, 767
Carbine scabbards.....	12, 990
Cruppers.....	95
Currycombs.....	18, 631
Horse brushes.....	18, 967
Horse covers, cotton duck.....	471
Lariats.....	19, 206
Links.....	8, 687
Nose bags.....	25, 510
Picket pins.....	17, 804
Saddle blankets, cavalry.....	36, 795
Saddle bags, black leather.....	23, 183
Side lines.....	5, 122
Stirrups, with hood.....	22, 826
Surcingle.....	6, 463
Spurs, pairs.....	49, 757
Spur straps, pairs.....	45, 551
Watering bridles.....	16, 815

Field material.

3.2-inch field guns.....	123
Carriages and limbers.....	123
Caissons and limbers.....	24
Battery wagons and forges.....	19
Sets wheel harness.....	265
Sets lead harness.....	545
3.6-inch field guns.....	22
Carriages and limbers.....	22
Sets wheel harness.....	24
Sets lead harness.....	48
3.6-inch mortars and platforms.....	22

Siege material.

5-inch siege guns, with carriages and platforms.....	20
7-inch siege howitzers, with carriages and platforms.....	22
7-inch siege mortars, with carriages and platforms.....	6

After the return of the army from Cuba a board of ordnance officers was assembled at Montauk Point to confer with officers of cavalry, infantry, and artillery who had served in Cuba, and ascertain wherein any ordnance and ordnance stores had proved unsatisfactory, with the view of correcting any defects that might have been discovered in actual campaign.

Although our modern small arms have been used for several years in Indian campaigns, the modern artillery had not been subjected to the exigencies of transportation, rough marches, and exposure in such a climate as that of Cuba. The report of the board will be given in Appendix 19.

It commends in the strongest terms the magazine rifle, and in general all the arms, equipments, and the field artillery used in the campaign, but the report is especially useful in discovering many small details which can be improved. The changes recommended will be made at once.

The following résumé of the report of Capt. H. D. Borup, Ordnance Department (Lieutenant-Colonel, United States Volunteers, and chief ordnance officer at Santiago), on the armament of the defenses of Santiago Harbor is of interest. The report itself is published as an appendix to this report.

"Before the outbreak of hostilities, the port defenses of Santiago consisted of four antiquated forts or batteries, of which one, St. Catalina, was abandoned, and a second, Punta Blanca, from its position, useless. Of the other two, Morro Castle constituted the outer line and Estrella the inner one. The armament of the former consisted of five ancient mortars and two siege guns, and the latter of two obsolete cast-iron howitzers, all of feeble power.

"After war was declared, four batteries were hastily improvised, all of weak profile.

"Including all forts and batteries, the number of guns may thus be stated:

[Obsolete.]

"Bronze muzzle-loading smoothbores:

Guns—	
6-inch.....	2
4.5-inch.....	2
Mortars—	
13-inch.....	3
9.5-inch.....	2
"Muzzle-loading converted rifles:	
Bronze guns, 6.3-inch.....	5
Cast-iron howitzers, 8.5-inch.....	7

[Modern.]

"Steel breech-loading rifles, 6.3-inch.....	4
"Bronze breech-loading howitzers, 6-inch.....	2
"Revolving canon, 1-inch.....	4
"Rapid-fire, 1-inch.....	1
"Rapid-fire, 2-inch.....	1
"Total	33

"Or 21 obsolete and 12 modern pieces; and of the latter 4 only are of comparatively high power.

"The exterior line consisted of 17 obsolete and 2 modern pieces, the former being furnished by the Spanish war department and the latter by the navy department. The bold front put up by the former seems to have been effective. The real strength, however, lay in the guns taken from the *Reina Mercedes*, so that the duel between the fleet and the land was practically fought by the navy of both powers. After one of these guns was disabled by the carriage being rendered *hors du combat*, the outer defense was really confided to a single piece."

The war has furnished no opportunity for determining by experience the effect of our modern seacoast armament against modern battle ships. The reports of the experience gained, however, tend to confirm the opinion that the fire from ships can not silence the fire or seriously cripple the armament of our modern batteries; that the ships could not withstand the fire of our modern batteries, and that therefore the ships can not attack the batteries successfully. Whether the ships can run by the batteries without too great risk has not been shown. This will depend on the skill and rapidity with which the guns are served, provided the ships are not stopped by the mines.

ROCK ISLAND ARSENAL.

Owing to the large increase in the business of Rock Island Arsenal, the report of it is too voluminous to be published in full, although portions of it are placed in the appendix to this report.

There has been a rearrangement and installation of machinery for the manufacture of saddletrees, and the manufacture of harness and canteens, saddlery hardware, and parts of infantry, cavalry, and horse equipments. There has also been a considerable rearrangement of machinery among the different shops with a view to carrying out the largely increased requirements of manufacture at this arsenal.

During the continuance of the war the machinery in general was operated for twenty hours a day, including, for several weeks, Sundays also. Full report of the increase of force and output is given in the appendix to this report, and the appendix contains such full details as to the extent of manufactures carried out that only a very general reference need here be given to it. Considerable work was done in fitting up bayonet scabbards for the Springfield rifle, caliber .45, with frogs, swivels, and hooks. The scabbard bodies were sent from Springfield Armory, and the force engaged upon them was increased until the output reached about 7,000 completed bayonet scabbards per day. The number of canteens required for the Army was very great, and a force was employed which finally reached an output of some 8,000 canteens per day.

To still further assist Rock Island Arsenal in obtaining supplies, other arsenals were called upon to furnish a large quantity of material, parts of which were supplied by Rock Island Arsenal. In addition very extensive calls were made upon contractors for furnishing infantry and cavalry equipments.

The output of articles of infantry equipments, which was placed at 1,500 per day, was gradually increased to 3,000 per day, and later, what might be called the "mess outfit" portion, to 5,000 or 6,000 per day was attempted. Very large purchases were made from contractors of all such material, and at the close of the war 131 different firms or individuals were, or had been, delivering material at the arsenal.

On March 1 the number of employees was something less than 500, while on July 31 over 2,900 employees were engaged at the arsenal in doing various kinds of work there undertaken. No great difficulty was experienced in securing all men to whom employment could be given, with the single exception of harness makers, and had the magnitude of the orders to be ultimately given been known in advance, it is probable that even these workmen could have been obtained.

While fairly favorable prices were obtained for the \$1,110,000 worth of finished articles of ordnance stores procured under contracts, yet in all cases they exceeded, and in some instances considerably so, the cost at which such stores were turned out at Rock Island Arsenal; for instance, in the case of saddles, the peace-time cost for the number usually made at Rock Island Arsenal is about \$14. When made in larger quantities, it has been brought something below that figure, yet the average cost will, for the 11,500 which had to be purchased, be about \$16.60, and in that item alone there would have been a saving to the Government of about \$30,000 if the plant at the arsenal had permitted their manufacture with the necessary rapidity. Besides this it should be noted that the articles obtained by purchase, especially when haste is necessary, have often been inferior both in material and workman-

ship to those produced in the Government shops—a fact generally acknowledged by the contractors who examined the work at the arsenal. The contract stores are therefore not only expensive, but will have to be sooner replaced.

The grounds and roads at Rock Island Arsenal are kept in as good a state of police as funds available for the purpose would permit, and are generally in good condition.

Fort Armstrong avenue, at the west end of the island, connects the bridges leading from Rock Island to Davenport, and is subjected to the traffic, not only of the arsenal, but to all that which passes between the two cities. It was resurfaced last fall, and efforts have been made to keep it in repair; but, as the traffic is so heavy, both in the number of teams and the weight of loads, a granite pavement should be laid in place of the macadam, and an estimate for such pavement is submitted.

Previous reports have been made as to the inadequacy of the post hospital. It is an old frame structure, erected during the civil war, about thirty-five years ago. It is drafty and leaky, and the timbers are decayed. Patients placed in this building for treatment must have blankets hung around their beds in cold weather to keep off the draft, and the beds must be moved from place to place in wet weather to avoid the rain. The Inspector-General has reported that this building is "utterly unfit for hospital purposes, and not worth repairing." Estimates have been repeatedly submitted, and are again included this year. It is really a cruelty to place a sick man in this structure.

The supervision of many manufactures at the arsenal requires more assistant officers. The magnitude of the operations of the arsenal, with its 2,900 employees, its night and day shifts, purchases of material for artillery, cavalry, and infantry soldiers, and the inspection and examination of equipments received from many contractors, has involved since April 1, 1898, an expenditure of over \$2,600,000. Additional quarters are required for assistants, and steps should be taken to provide at least two sets of officers' quarters, for which an estimate is submitted.

The building used as a stable is a relic of the prison structures of the war of 1861-1865. It is almost unsafe for horses, and is so decayed as to be a menace in its possibility of rapid destruction by fire. An estimate for a new stable is submitted.

The railroads and bridges have been kept in repair, and the mechanism of the drawbridge has been entirely overhauled. As a result of the repairs to this mechanism, instead of frequent and expensive accidents attending the operation of the draw, as heretofore, with the accompanying delays of navigation, railway, and other traffic, these have been avoided to such an extent that there has not been an accident of any kind nor any delay.

Considerable changes have been made in the water power of the arsenal, which have been previously reported; and, from an appropriation made an additional improvement is now being added. Two methods were proposed—one, the construction of a long wing-dam up the river; another, the excavation of a channel from deep water near the head of the present short wing-dam to deep water in the pool near the Moline Bridge. The first plan is, in the first instance, the less expensive, and the appropriation made, \$45,000, is sufficient to carry out this plan, and it is now being done.

The field and siege carriage plant has been considerably increased by the addition of necessary machines, and by taking advantage of

the room afforded by the use of Shop G. Some of the machinery required for the completion of the plant for the manufacture of these carriages has already been delivered, and the additional amount, for which appropriation has been made, is being installed.

The remainder of the report, which relates to modifications in field carriages, gives in full the changes in details of construction of these carriages.

A large number of Springfield arms and other ordnance stores have been repaired at the arsenal, and a report on the subject, made by the commanding officer of Rock Island Arsenal, and a separate report on the cleaning and repairing of rifles, will be found in the Appendix.

The "general remarks" in the Appendix contain much valuable information as to the capacity of this arsenal and the benefit to be derived by the Government taking advantage of it.

WATERVLIET ARSENAL.

GUN FACTORY.

During the past year there have been finished and assembled at the gun factory some 89 3.2-inch guns, model 1890; 24 3.2-inch guns, model 1897; 1 3.6-inch B. L. rifle, model 1891; 9 5-inch B. L. siege rifles, model 1890; 10 7-inch B. L. siege howitzers, model 1890; 4 10-inch B. L. rifles, model 1888; 1 10-inch B. L. rifle, model 1895; 9 12-inch B. L. rifles, model 1888, and 1 12-inch B. L. rifle, model 1895; also 42 12-inch B. L. mortars.

Of the experimental guns there have been finished and assembled 2 5-inch rapid-fire type guns of .45-calibers length, and 2 type 3-inch field guns. A number of guns have been turned in from the service for overhauling and repair.

The 16-inch gun is now under fabrication. All the forgings have been delivered and work is well advanced on the finishing and assembling. It is expected to complete this gun in about one year from this date.

There are also under construction at the factory 8 5-inch rapid-fire guns and 16 6-inch rapid-fire guns, model 1897. These guns can probably be completed during the present calendar year, and the manufacture of some 13 additional 6-inch rapid-fire guns will be begun early in 1899.

GUN-FACTORY PLANT.

An oil furnace to burn coal oil is to be used in assembling the 16-inch gun and also for general work in connection with the shrinking work required in the manufacture of cannon. Drawings of this furnace have been approved, all the materials have been obtained, the necessary excavation in the shrinkage pit has been completed, the foundations built, and the work of erecting the furnace proper is about to commence. This new construction should be in running order within two months. The results with the experimental oil furnace built last year have been so satisfactory as to encourage the belief that the new large furnace will prove a success.

To handle the different parts of the 16-inch gun and the gun itself, as it progresses, a number of bars, links, straps, hooks, etc., are needed and are now being provided.

The crane way in the south wing for the 60-ton and 120-ton cranes require to be strengthened and receive new rails for the wheels of the cranes before subjecting them to the heavy work which they will be required to sustain.

The wooden gallery in the north wing, upon which are placed the counters for the gun lathes, is out of level, and it is designed to replace the wooden beams as soon as practicable by steel girders.

During the year there have been purchased and erected in the first and second sections of the small gun shop a number of engine lathes, planers, slotters, shapers, etc., to increase the equipment of this plant and to bring up its manufacturing facilities to the increased demands put upon it by a state of war.

LOWER SHOPS.

The work in the machine, blacksmith, and carpenter shops below the canal has greatly increased. The principal output of these shops during the year was some 300 armament chests for siege and seacoast cannon, with tools and supplies complete. A large number of seacoast projectiles have been banded, painted, and boxed in these shops. Also, others have been tapped and bored for the fuzes it is intended to use with them in service.

PREPARATION OF AMMUNITION.

At the outbreak of the war instructions were sent to this arsenal to fix and prepare for issue all the shells and field artillery ammunition, and later it was ordered that the cartridges for this ammunition should be made here; also that shell for the siege service should be prepared for issue. To accomplish this work, a shed was erected at the door of the east magazine, under which cartridge bags were filled, and the building known as Shed O, situated by the railroad track, north of the barracks, was emptied of lumber and fitted with floors and windows, to be used for filling and packing shell. A platform was erected so that shipments could be received into and made direct from the building. These facilities permitted of 2,000 field shell being filled, packed, and shipped in a day.

In filling cartridge bags with Du Pont smokeless powder much labor was required to pack the powder in the bag, continued pounding with a stick being necessary.

Large quantities of ammunition were prepared here and issued to the service on requisitions from the troops, or were placed in storage, subject to issue.

BUILDINGS AND GROUNDS.

The shops and storehouses are much in need of extensive repairs, but for want of funds during the past year only such work has been done on them as appeared, from time to time, absolutely necessary. An estimate is included in the annual estimates for the next fiscal year to provide for these needed repairs.

WATERTOWN ARSENAL.

SEACOAST GUN-CARRIAGE FACTORY.

The shops have been busily employed during the entire year at their maximum capacity for eight hours work per day, and during the latter part of the fiscal year, after the declaration of war against Spain, the machine shops were running sixteen hours per day, with an extra shift of workmen at night; the fourth running on extra hours, which

differed for different gangs of workmen, depending upon the urgency of the particular jobs in hand; the carpenter shop was pushed to its extreme to supply the demand upon it, and the smith and forging shop worked extra hours in order to keep the machine shop supplied with forgings.

Jobs of work on lots of carriages necessarily overlap, some being partially commenced in one year and carried over into the next, but the following statement of fabrications is believed to be sufficiently definite to give a correct idea of what has been done.

The following carriages have been completed since my last annual report:

- Four 12-inch disappearing carriages, model 1896.
- One 10-inch disappearing carriage, model 1894.
- Six 10-inch disappearing carriages, model 1896.
- Five 8-inch disappearing carriages, model 1894.
- One 5-inch rapid-fire balanced pillar carriage.
- Three 12-inch gun-lift carriages altered to barbette.

Work has been in progress during the year on the following carriages, and the amount done on them is as stated:

Seventeen 7-inch siege mortar carriages and platforms. These are about completed except assembling.

Thirty 3.6-inch field mortar carriages and platforms. These are nearly completed.

Seven 5-inch rapid-fire balanced pillar mount. Work on these was suspended awaiting changes in the gun and proof of the type carriage. They are about completed except assembling.

One 10-inch A. R. F. disappearing gun carriage completed. This is the type carriage. Considerable time was consumed in the manufacture of the patterns, and great delay has been caused by nondelivery of steel castings, but all parts are completed and the work of erection alone remains to be done.

One 10-inch A. R. F. disappearing gun carriage in progress. Contract has been let for the steel castings, the iron castings are partially completed, but the carriage as a whole is held back awaiting the test of the type carriage.

From the special war appropriation of \$50,000,000 this arsenal was allotted sufficient to construct five 12-inch disappearing carriages, model 1896, and six 10-inch disappearing carriages, model 1896.

Of these the 10-inch carriages are about completed, except erection, and this will be done this fall. The steel castings for the 12-inch disappearing carriages have been partially received and are being machined, the iron castings are about half completed in the foundry, while the forgings, except a few, are completed in the smith shop. It is believed all will be entirely completed some time before the end of the new fiscal year.

There have also been received from Sandy Hook the following carriages for alteration and repairs: One 10-inch experimental disappearing gun carriage, and one 8-inch experimental disappearing gun carriage. These are the type disappearing gun carriages, service pattern, that were first tested, and are to be altered to conform to the later improved designs.

Also one 8-inch B. L. barbette carriage has been received back from Sandy Hook to be rebuilt.

Each carriage was supplied with an implement chest and implements complete. Also each disappearing carriage was supplied with three shot trucks and five pairs of shot tongs.

Implement chests and implements were also made for and sent to each barbette carriage manufactured in previous years.

In addition to the above the following miscellaneous fabrications have been turned out during the year:

A considerable number of shot and shell, from 12 inches down, rammers, rammer staves, sponges and staves, special bore sponges, slush brushes, scrapers, wooden blocks for mounting guns, wooden rollers, skids, shifting and way blocks, handspikes of various sizes, gins, capstans, ammunition trucks, sling chains, shot tongs, shop comparators, a multiple rotating machine, and calipers and gauges for inspectors. Also a large number of parts for the alteration and repair of gun carriages in service and many repairs made to machines in service. Mechanics also have been sent from the arsenal to the various forts to erect and repair carriages.

During the year a considerable number of tools have been set up in the machine shop, so that there are now but several of the old tools remaining in place. These are yet serviceable, though they might to advantage be replaced by more modern designs. As far as the supply of machine tools is concerned, this arsenal may be said to be equipped to the capacity of the shops as regards space, and, generally speaking, the tools are of latest pattern.

The smith and forging shop has had, during the year, a new horizontal tubular boiler put in to replace the old and smaller boiler over the furnace. This boiler supplies steam to all of the steam and trip hammers and to the bolt machine. This shop is thus independent of the main battery of boilers, at a considerable saving of steam power, probably 25 horsepower per day. Two additional forges have been put in and one additional 1,000-pound steam hammer. There has also been added an oil-tempering equipment and annealing oven.

In the foundry, changes have been made looking to reduction in cost of castings, with increase of production, by replacing loam castings with dry-sand castings.

The carpenter and pattern shops have had more work than their capacity admits, so that in order to do the amount of work required much of it had to be done in the open.

The demands of the recent war brought greatly increased work upon the arsenal, but it is believed that every demand was promptly met. The limit of capacity was, however, nearly reached, and if the war had been conducted by a nation strong in its navy, so as to threaten an assault on our seacoast fortifications, it is doubtful if all the demands that would have been made upon the shops here could have been met. The full plant is now occupied in current demands. With the appropriation now available for increase of plant its capacity will be considerably enlarged, though not sufficiently to meet the increased wants incident to a time of actual war.

TESTING DEPARTMENT.

During the past year the operations of the testing department have included among its tests the tests of material representing the current work of the Department and tests of an investigative character relating to ordnance material.

The tests of current material for the Department have comprised metal from field, siege, and seacoast guns and mortars, the metal for small arms, barrels and receivers, and Gatling gun barrels. There were tests of cast-steel shell bodies, the metal used in mortar carriages and in the construction of disar
carriages.

Among the tests of an investigative nature, the inquiry into the initial strains in gun forgings which had been cooled from the bore have been very prominent. The strains found in the bore of a gun after firing have also been the subject of investigation. The importance of these tests is such that they are being continued in a very exhaustive manner, and it is expected that they will add much information to a subject about which so little experimental knowledge is to be found.

The examination of some 3.2-inch and 5-inch cast-iron shells under compression loads showed the ultimate compressibility of the iron under higher loads, and the ratio of lateral expansion to direct compression was established.

The metal from forgings which had shown a streaked appearance was examined, and while it was shown that the streaks indicated a want of homogeneity in the metal it was further shown that many cases of streaked metal might exist and not practically impair the value of the forgings for gun purposes.

The test of cast iron from the arsenal foundry is accompanied by full descriptions of the furnace charges, and chemical analyses are furnished with other cast and pig irons which display interesting results.

The machine for making endurance tests of metals, a 6-specimen machine, and the impact machine, both referred to in the report of 1897 as having been designed at that time, have now been constructed and erected. Tests on each machine will be undertaken at an early day. The machine for endurance tests has the new feature of providing for tests under combined bending and longitudinal stresses, and either stress may be varied at will.

The impact machine is one of very massive construction. Over 60,000 pounds of metal are found in the anvil, chabotte, and base casting. The machine provides facilities for tests by impact in tension, compression, and by transverse loads. Accessory parts will be required from time to time as special lines of investigation are taken up, the apparatus as it now stands affording opportunities in a fundamental way for complete tests on shock and suddenly applied loads.

In photomicrography the work of collecting data has continued, and photographs have been made of material tested, the physical properties of which are known as well as the chemical composition. While the significance of the changes in microstructure are not yet known, it is nevertheless evident that great variety in structure may be displaced by different steels, and it does not seem illogical to suppose that eventually some definite laws will be discovered establishing the relation between the ability of the metal to endure the mechanical effects of stresses and the physical structure of the material.

The need of a new administration building becomes more apparent each day. The office work has quadrupled since the establishment of the gun carriage factory here. There are no proper depositories for valuable drawings and papers, no space for officers and clerks, and no conveniences at all. Before anything else an office building should be built.

SPRINGFIELD ARMORY.

There were manufactured at the Armory during the year ended June 30, 1898, 29,566 magazine rifles and 12,022 magazine carbines, model of 1896. This is an output of about 11,000 more than last year, but does not show the large daily increase incident to the war with Spain, as

the maximum was not reached until August 13, when the average daily manufacture was 363, or at the rate of over 100,000 per year. The average daily output of finished arms prior to March 15, 1898, was 120 per day. On March 23 this was increased to 140, on May 26 to 160, on June 13 to 200, on June 20 to 240, on June 26 to 280, on July 11 to 300, and on July 20 to 340. The average daily output during the week ended August 13 was 363.

The necessity and time required for procuring and installing new machinery is the cause of the gradual increase shown above. Although every effort was made by the Department, and two shifts of men working ten hours each were employed, it was impossible to increase the output with greater rapidity.

The increase was also complicated by the fact that preparations were in progress to introduce a large number of changes in the rifle, the advisability of which had been developed in manufacture or in service. These changes, which are given in full in the report of the commanding officer of the Springfield Armory, which is an appendix to this report, were approved by this office March 14, 1898, and preparations for manufacture promptly begun. The resulting gun has been called the model of 1898, and the manufacture was commenced July 1, 1898. The changes enable every component part to be made interchangeable, so that each can be issued for repairs separately, except that the barrel and receiver must be issued assembled, and the rear-sight slide must include sight screw and pin. The capacity of the armory is now 200 firearms for each eight hours' work.

In developing the magazine arm to its utmost efficiency much study has been devoted to the subject and many experiments have been made. When the magazine rifle was first issued there was some complaint that the sights were not accurately set and graduated. This defect has been corrected and the sights as now issued conform to the results obtained from many experimental firings, and are believed to be as accurate as the varying conditions of locality, atmosphere, and personal equation will permit.

During the year a new model rear sight has been designed which will permit of corrections for drift and wind. Two of these are being made.

A 200-yard indoor target range is being prepared in one of the storehouses, which will be used to determine what variations exist in the accuracy of the rifles and carbines as now manufactured.

The steel obtained for barrels during the year has given very satisfactory results. It was observed that a deterioration of the metal in the important qualities of tensile strength and elasticity appeared after rolling, and it was suspected that this might be due to the high temperature to which the metal was raised, and possibly to the action of the powdered coal upon it while in this condition. The experiment was therefore tried of rolling the barrels at a much lower heat, and considerable improvement was noted. The barrels are now rolled at a dull red heat, and a new furnace, without the coal blast, is being prepared.

The necessity of using the Springfield rifles on hand for arming the volunteer forces required the provision of over 100,000 bayonet scabbards for the caliber .45 rifle, in addition to those on hand. The manufacture of the metal bodies for these was undertaken at the Springfield Armory, and a plant having a capacity of 175 per hour was established for the purpose. At the same time the plant for manufacturing the caliber .30 scabbards was ^{also} 30 per hour, and over 80,000 of these were fabricated during

The experience of the Department during the late war with Spain has emphasized the necessity, frequently pointed out in my reports, of equipping another armory for the manufacture of small arms. The utmost capacity that could be provided at the Springfield Armory would be, as above stated, about 200 completed arms for each eight hours' work, or about 500 per day, since only two shifts of ten hours each can be worked with due regard for economy and perfection of work.

A large reserve of magazine rifles should be provided as soon as possible. To this end the armory buildings at Rock Island Arsenal should be utilized. Their equipment with the necessary machinery, which has already been begun, should be pushed to completion and the manufacture of magazine arms commenced.

The capacity of these buildings is sufficient for increasing the daily output to 2,000 magazine arms per day.

FRANKFORD ARSENAL.

The principal manufactures of this arsenal are small-arms ammunition of all kinds, fuses of all kinds for field, siege, and seacoast ammunition, field and siege ammunition, sights for cannon, and inspecting instruments. The chemical laboratory of the Department, especially for investigation of powders and subjects connected therewith, is also located at this arsenal.

In consequence of the magnitude of the operations of the arsenal on account of the war, only shrapnel ammunition was made for the field and siege artillery. The preparation of shell ammunition was transferred to the Watervliet Arsenal. Detailed statements of the operations of this arsenal are contained in the appendix to this report. The lack of sufficient capacity at this arsenal to meet the demands of the war was seriously felt. As has been stated elsewhere in the report, an additional plant for increasing the capacity of the arsenal is now being installed. Much of this plant, especially for the manufacture of shrapnel and fuses, was installed in haste in the midst of the great pressure of work devolved on the arsenal immediately after the commencement of hostilities.

The manufacture of small-arms cartridges and shrapnel to meet the requirements of the war was accomplished by making contracts with outside manufacturers at increased prices—in some cases largely increased. The difficulties attending the manufacture of shrapnel by private parties were very great. It was necessary that they should all be sent to the arsenal for final inspection, and in many cases only portions of the shrapnel could be manufactured by outside parties and the other parts were manufactured at the arsenal, and the projectile thus completed. It had then to have the fuses and bursting charge and powder charge added at the arsenal, and the whole assembled, packed, and prepared for issue.

The procurement of fuses from private manufacturers presented even greater difficulties. Only some of the simpler parts of the fuse could be manufactured by private parties, and their manufacture had to be under close inspection throughout the manufacture. These parts were then sent to the arsenal and the other more difficult parts were added, and the whole assembled, and the fuses completed at the arsenal.

It would be difficult to give any summary of the multifarious operations of this arsenal during the year, and this information can be obtained only from the detailed report in the Appendix. By utilizing

the basements and some of the buildings not well adapted to the purpose, and by working two shifts at ten hours each, the output of caliber .30, smokeless cartridges, was increased from 48,000 to 180,000 cartridges per day, and the rate of production of some other articles, especially fuses, was still more increased.

The modern fuse is complex, requires the utmost accuracy of construction and much variety for fulfilling the many different requirements of the various kinds of seacoast projectiles and the various effects which they are intended to attain.

Much important work in connection with working up the various kinds of smokeless powder required for all branches of the service, including the small arms, has been devolved upon the chemical laboratory during the year, and this laboratory has been of great value to the Department.

SANDY HOOK PROVING GROUND.

Firings for experimental and proof purposes have been conducted during the year in the usual manner. The object of these firings and the nature and character of the work done at the batteries are summarized in tables appended to this report. Detailed reports of the results of these firings have been submitted to the Department from time to time by the Ordnance Board, the Board for Testing Rifled Cannon, the Board on Powders and High Explosives, and the commanding officer of the Sandy Hook Proving Ground.

In addition to the routine work done in the machine shop at this post, machinists who have acquired skill and experience at this place in gun and carriage work have been kept constantly employed adjusting the service-telescopic sights to the guns and carriages mounted in the fortifications, altering throttling bars and counter-recoil buffers, and making such other minor alterations and repairs as were found necessary to place the guns and carriages in perfect working order. It has been necessary to send machinists to do work of this nature to the different fortifications along the coast from Maine to Texas.

Under the supervision of the commanding officer of the Proving Ground, the guns and machinery of the pneumatic dynamite gun battery located at Sandy Hook have been overhauled, repaired, and put in thorough working condition. The lofty iron smokestacks, projecting above the battery and exposed to the fire of guns, were removed and the necessary draft for the boilers provided by means of steam fans. The action of these fans has been very satisfactory.

During the year a very efficient water-supply system has been installed at this post. In 1891 estimates were submitted for the installment of a waterworks system, the plan contemplated being on a somewhat elaborate scale, the estimate of cost for which was \$10,000. Owing to the lack of funds this project was abandoned, and a less expensive system, costing about \$2,000, has been inaugurated. The money allotted covered merely the bare cost of materials and superintendence. All the work of laying the pipes, setting the hydrants, making connections, etc., was done by the enlisted force at the Proving Ground, and the work was done in a most satisfactory manner.

During the past year the following guns and mortars of modern construction have been issued from this post, after proof, for installation in seacoast fortifications, viz:

Breech-loading rifles, steel.—34 8-inch, 36 10-inch, and 6 12-inch.

Breech-loading mortars, steel.—69 12-inch.

The railway connecting this post with the Central Railroad of New Jersey fulfills all requirements and continues a source of great convenience and economy in the movement of heavy ordnance and Government supplies. During the past year the road has been improved and strengthened by the removal of old and worn-out ties and rails and replacing them with new ones. Under direction of the Engineer Department, a riprap of heavy stone has been placed on the east side of the trestle work, thus affording a protection to the latter during severe storms. Some 7,000 tons of freight have been shipped to and from this post during the year, the movement of freight cars being 1,149 and of passenger coaches, containing troops, 13.

INDIANAPOLIS ARSENAL.

It was necessary that a portion of the equipment for the Army should be made at Indianapolis Arsenal. The second floor of the artillery storehouse was prepared for manufacture, and 18,050 haversacks and 12,575 haversack straps, with the necessary packing boxes, had been fabricated when directions were given to stop the work. Some 7,200 Springfield rifles were overhauled, cleaned, and oiled.

ARMAMENT OF FORTIFICATIONS, ETC.

SEACOAST GUNS.

Under the provisions of the fortifications act approved May 7, 1898, additional contracts were placed with the Bethlehem Iron Company and the Midvale Steel Company for two sets of 8-inch gun forgings, model 1888, and five sets of 12-inch forgings, model 1895. The total number of sets of gun forgings thus far provided for, exclusive of type guns and 100 guns contracted for with the Bethlehem Iron Company, are as follows:

Caliber of gun.	Number of sets.
8-inch	67
10-inch	87
12-inch	94

Of the 8-inch guns completed and issued to service, four were lost overboard in transport to the works at Tybee Island, Georgia. The number of guns completed up to June 30, 1898, was as follows:

Place of manufacture.	8-inch rifles.	10-inch rifles.	12-inch rifles.
Army Gun Factory	52	68	48
West Point Foundry	11	.....	.....
Bethlehem Iron Works	25	25	.....
Total	88	93	48

In addition to the above, the Bethlehem Iron Company will complete during the present calendar year 5 additional 10-inch guns and 4 12-inch guns.

16-inch gun.—The forgings for this gun have been delivered by the Bethlehem Iron Company, and work on finishing and assembling the gun is now being pushed. It is expected that this gun will be completed next spring. In the meantime the design of a carriage is

being worked up for mounting it, which carriage will be tested simultaneously with the gun itself. The dummy breech mechanism for this 16-inch gun, referred to in my last annual report, is about completed.

SEACOAST MORTARS.

Under the provisions of the last fortifications act, additional contracts for 12-inch mortar forgings have been placed as follows: With the Bethlehem Iron Company, for 41 sets; with the Midvale Steel Company, for 42 sets.

The finishing and assembling of these mortars will be done at the following establishments: 54 at the Army Gun Factory, 20 at the Builders' Iron Foundry, Providence, R. I., and 9 at the Niles Tool Works, Hamilton, Ohio.

Also a contract for 25 mortars, complete, including forgings, has been placed with the Bethlehem Iron Company, making a total of 108 mortars provided.

The total number of mortars thus far completed and under manufacture is as follows: 73 12-inch mortars, cast iron, hooped, model 1886; 8 steel mortars, model 1886-1890; 239 12-inch steel mortars, model 1890; making a total of 320 mortars.

DYNAMITE GUNS FOR COAST DEFENSE.

PNEUMATIC DYNAMITE GUNS.

On the outbreak of hostilities between this country and Spain the Department at once placed in serviceable condition the pneumatic dynamite-gun batteries located at the ports of New York and San Francisco. A supply of explosive gelatin was procured for filling the shell, and arrangements made with the company for filling the shell and doing any needful work required on the fuses which were in store.

Two more batteries of the guns, containing one 15-inch gun each, with carriages, power plant, projectiles, and all other necessary material for their service, are now located, and the guns, etc., are being manufactured by the contractor.

RAPID-FIRE GUNS.

Not many of these guns, with their carriages and ammunition, had been provided prior to the commencement of hostilities. The much greater value and importance of the large guns and the comparatively long time required for their production and mounting had caused the Department to devote the resources that could be obtained for coast defense to the production of these guns and carriages. Moreover, the rapid-fire gun was comparatively a late weapon of defense, and although experiment with these guns has been in progress for several years, the best types were not arrived at until recently.

Immediately upon the anticipation of hostilities, steps were taken to procure these guns and their carriages, ammunition, and accessories, both in this country and abroad, as rapidly as possible.

Orders were placed in England for 34 4.7-inch guns, with their mounts and 300 rounds of ammunition per gun. These guns were of the Armstrong type and were all that could be obtained for immediate delivery. Later an order was placed for 8 6-inch Armstrong guns,

with the Vickers Maxim Company, the delivery of which was guaranteed within two or three months. Four 4-inch rapid-fire guns of the Driggs-Schroeder type, with their mounts, were obtained by purchase from the American Ordnance Company in this country. All the above guns on delivery were placed in position in the defenses. Under the provision made by Congress in the emergency fund, contracts were made for procuring the following additional guns in this country:

Twenty 6-pounder rapid-fire guns, with 300 rounds of ammunition per gun.

Eighty 15-pounder rapid-fire guns, with 300 rounds of ammunition per gun, the latter gun being specially adapted for the defense of mine fields.

Twenty-five 5-inch and 25 6-inch Brown segmental wire guns with their mounts and 200 rounds of ammunition per gun.

In addition to the above the Department also placed under manufacture, partly at the gun factory and in part by contract, 32 5-inch and 15 6-inch rapid-fire guns, with their mounts and about 200 rounds of ammunition per gun, and it is now preparing to early contract for 40 additional 6-pounders, 40 additional 15-pounders, and 13 additional 6-inch rapid-fire guns, and these guns will be completed during the coming year, and will give a total number of 336 rapid-fire guns, of all calibers. These guns all use smokeless powder.

The carriage for the 6-pounder is of the field-carriage type in order to admit of using these guns in the open against landing parties as well as for firing over a parapet. For the latter use the carriages are secured to a pintle, the carriage being provided with a hydraulic cylinder recoil device to admit of the gun recoiling separately from its carriage. The 15-pounders will be mounted on balanced pillar or masking parapet mounts to admit of their being lowered below the crest of the parapet and thus placed under cover when not in actual use. As regards the carriages for the larger calibers, it was contemplated to mount them either on pillar mounts or disappearing carriages, and a number of these guns will be so mounted. The remainder have been or will be mounted on the usual pedestal mount, as that type of mounting was covered by the manufacturers' bid, and there was not time to work up a new mounting of other types.

In the most recent type of rapid-fire gun of large calibers, as 5 or 6 inches, produced abroad, metallic ammunition is dispensed with, and the primer is placed in a recess in the rear face of the breechblock. A new primer is inserted before the breech is closed. The speed of fire that has been obtained with this type of gun for a gun of 6-inch caliber has been as high as nine rounds per minute, a speed which probably has not been surpassed, if equaled, with guns of this caliber of the old system, using metallic ammunition. It is proposed to employ this new type of gun for the 5 and 6 inch guns under manufacture by the Ordnance Department.

SEACOAST CARRIAGES.

The work on seacoast carriages has progressed satisfactorily during the past year, and since the date of my last report additional carriages for guns of various calibers have been ordered, as shown by table on the following page.

Number of seacoast carriages contracted for or ordered since October 1, 1897.

Designation of carriages.	Number ordered.
4-inch Driggs-Schroeder carriages with pedestal mounts.....	4
4.7-inch rapid-fire carriages (Armstrong pattern) with pedestal mounts.....	34
5-inch rapid-fire carriages (Navy pattern for Brown segmental wire gun).....	25
5-inch barbette carriages on pillar mounts, model of 1896.....	22
6-inch rapid-fire carriages (Navy pattern for Brown segmental wire gun).....	25
6-inch rapid-fire carriages (Vickers Son & Maxim), pedestal mounts.....	8
6-inch disappearing carriages, model of 1898.....	16
6-pounder rapid-fire carriages, field-carriage and rampart mounts.....	20
16-pounder rapid-fire carriages, 2 casemate and 78 pillar mounts.....	80
10-inch barbette carriages, model of 1893.....	5
12-inch barbette carriages, model of 1892.....	18
8-inch disappearing carriages, L. F. model of 1896.....	22
10-inch disappearing carriages, L. F. model of 1896.....	22
10-inch disappearing carriages, A. R. F. model of 1896.....	2
12-inch disappearing carriages, L. F. model of 1896.....	17
12-inch disappearing carriages, L. F. model of 1897.....	22
12-inch mortar carriages, model of 1896.....	86

There are a number of firms in the country well equipped for their manufacture, and by a proper distribution the carriages can be completed and furnished as fast as the fortifications are ready for them and more rapidly than the guns of larger caliber.

The following table represents the total number of seacoast cannon and carriages mounted in their emplacements or estimated to be mounted at the dates specified, the numbers stated under the heading June 30, 1900, being based on the estimates which have been prepared and sent to you to be submitted to Congress for its action during this coming session, viz:

Total number of seacoast cannon and carriages mounted or estimated to be mounted at the dates given.

	June 30, 1896.	Sept. 30, 1896.	June 30, 1899.	June 30, 1900.
6-pounder rapid-fire carriages, field carriage and rampart mounts.....			70	160
16-pounder rapid-fire carriages, 2 casemate and 78 pillar and 40 pedestal mounts.....			95	120
4-inch Driggs-Schroeder carriages with pedestal mounts.....	4	4	4	4
4.7-inch rapid-fire carriages (Armstrong pattern), pedestal mounts.....		34	34	34
5-inch rapid-fire carriages (navy pattern) for Brown segmental wire guns.....			15	25
5-inch barbette carriages on pillar mounts, model of 1896.....	1	1	32	32
6-inch rapid-fire carriages (Vickers Son & Maxim) pedestal mounts.....		6	8	8
6-inch rapid-fire carriages (Navy pattern for Brown segmental wire guns).....			15	25
6-inch disappearing carriages, model of 1896.....			32	67
8-inch barbette carriages, model of 1892.....	8	8	8	8
8-inch altered barbette carriages.....	21	21	21	21
8-inch disappearing carriages, L. F., model of 1894.....	25	25	26	26
8-inch disappearing carriages, L. F., model of 1896.....	12	21	35	49
10-inch barbette carriages, model of 1893.....	5	5	10	10
10-inch disappearing carriages, L. F., model of 1894.....	34	34	35	35
10-inch disappearing carriages, L. F., model of 1896.....	43	50	70	74
10-inch disappearing carriages, A. R. F., model of 1896.....		1	3	3
10-inch mortar carriages, model of 1899.....				10
12-inch barbette carriages, model of 1892.....	8	8	26	26
12-inch gun lift carriages, model of 1891.....	2	2	2	2
12-inch altered gun lift carriages, model of 1894.....	3	3	3	3
12-inch disappearing carriages, L. F., model of 1896.....	5	7	27	27
12-inch disappearing carriages, L. F., model of 1897.....			22	45
12-inch disappearing carriage, A. R. F., model of 1899.....				1
12-inch mortar carriages, model of 1891.....	85	85	85	85
12-inch mortar carriages, model of 1896.....	132	132	222	348
16-inch turret carriage.....				1
Total number of carriages of all calibers.....	389	447	900	1, 189

NOTE.—The total number of 8-inch rifles completed will be 90, so that 14 of these carriages will be replaced by those of service pattern.

The work of this Department and that of the Corps of Engineers has been coordinated, so that the number of cannon and carriages provided is such as will meet the requirements of the emplacements provided by that department and, except in a few instances, the cannon and carriages have been provided as rapidly as required. I mentioned in my last report the successful test of a 12-inch disappearing carriage as the most important of the gun-carriage work of that year. Additional tests of this carriage have been made from time to time during the year, which have led to a few minor changes tending to improve its action, and these have been embodied in all carriages issued to the service.

The test of the rapidity of fire from this carriage made by the Ordnance Board (and witnessed by you) illustrates the comparative facility with which guns mounted on these carriages can be served. For this purpose the firing detachment consisted of thirty men, which number included those serving the ammunition. The test was begun with the breech block closed, one shot being on the pan of the ammunition truck. The gun was sponged out and put at an elevation of 9 degrees after each round. The time required for the ten rounds was sixteen minutes fifty-seven and one-fifth seconds, or an average of one round every one and two-thirds minutes. If this rate could be maintained thirty-five shots would be delivered per hour. Considering the total amount of ammunition handled for these ten rounds, viz, 14,500 pounds, the above rate of fire is the strongest testimonial to the perfection attained in these mounts. These carriages can be traversed 360 degrees by four men in two minutes, which means that a weight of 441,797 pounds is moved through this angle.

As shown by the table above, this Department has under manufacture sixteen disappearing carriages for 6-inch rapid-fire guns. These carriages are so arranged that they can be elevated, traversed, and fired by one man without removing his eyes from the sight; they are also arranged for indirect laying if desired. While in principle these carriages are the same as those for guns of larger caliber, they are of more recent design, and with the practical experience had with the larger carriages it is believed that the rapidity of fire will quite equal other models of rapid-firing carriages, while the cannoneers will have the advantage of greatly increased cover.

They have the same advantages as those claimed for the pillar-mount carriages, in that when out of action they are not exposed to view, and the additional advantage that in action they can only be seen at the time of firing, as they can be pointed when in the loading position. I am convinced that, all things considered, these carriages will fully meet the requirements.

It is believed the 8-inch disappearing carriages can also be arranged to be elevated, traversed, sighted, and fired by one man, which will increase their present efficiency; and steps have been taken to have such an arrangement placed on one carriage for trial. The project of the engineers contemplates three 10-inch disappearing carriages, A. R. F. One of these carriages has been completed at Watertown Arsenal and shipped to its emplacement, where it will undergo the usual proof firings. The remaining two carriages are under manufacture, and are expected to be completed within the next year.

The 10-inch pneumatic disappearing carriage (experimental) was completed and shipped to the Sandy Hook Proving Ground for test during the year. It has been erected on its platform for some months,

and is now awaiting some final adjustments by the contractors before it is placed in readiness for firing.

The Howell 10-inch disappearing carriage (experimental) has also been delivered and is now undergoing test. The many reports received from fortifications containing the modern armament indicate that, to be effective, war material must be designed and constructed with the utmost simplicity consistent with required efficiency, a point which has been constantly kept in mind in furnishing the new material.

12-INCH MORTAR CARRIAGES, MODEL OF 1896.

These carriages have been constructed and issued to the service as rapidly as appropriations would permit. Carriages of this model were substituted for those of the model of 1891 about two years ago, based on tests made of a type carriage which indicated greater simplicity in design and greater facility in manufacture, reducing the cost of production. The service of the mortar was also much improved. The experience had with these carriages indicates that they are thoroughly effective and easily kept in order.

FIELD ARTILLERY.

3.2-INCH FIELD GUNS—SERVICE.

During the past year 110 3.2-inch guns, reported as under manufacture in my last report, were completed and issued to the service. These guns, originally designed to be of model 1897—for smokeless powder and 16½-pound projectile, with band 1½ inches from base—were, with the exception of 30 guns, altered, prior to completion, to model 1890, by suitably enlarging the powder chamber so as to suit them to the use of black powder and a 13½-pound projectile, with rotating band five-eighths inch from base. This change was deemed necessary on account of the considerable supply of ammunition already on hand for guns of this model, and the urgency of the moment did not permit of altering the guns of model 1890 on hand to model 1897.

The four new batteries of the Sixth and Seventh Artillery were, however, equipped with the model 1897 gun, as there was a limited supply of ammunition on hand for guns of that model, and it would greatly facilitate the early equipment of these batteries to arm them with guns of this model. Six additional guns of this model were also provided at the same time, to provide a reserve supply for replacements in case of damage or injury in service.

An additional lot of 102 3.2-inch guns were ordered during the present year under an allotment from the \$50,000,000 emergency fund provided by Congress. Since the cessation of hostilities it has been decided to make these guns of model 1897 and to convert all the guns of model 1890 into the same model. This conversion requires simply the introduction of a short lining tube, to permit of rechambering. There will then be provided 362 3.2-inch guns, model 1897. It is the intention to use a 13½-pound projectile with all these guns, as soon as the limited supply of 16½-pound ammunition is exhausted, owing to the fact that there is over 160,000 rounds of the lighter ammunition on hand. The smokeless powder will be the same as that now used in the model 1897 gun, but the charge will be increased 2½ ounces, owing to the larger chamber space that obtains with the 13½-pound projectile with band five-eighths inch from the base. It should be stated that a smokeless powder has been provided for the guns of model 1890, issues of which were being made to the service. Owing to the larger powder chamber

in this model of gun the charge required was large—some 4 ounces larger than that required in the model 1897 gun for the same weight of projectile, but in which the chamber is designed for using smokeless powder. The chamber in the model 1890 gun was designed for using charcoal powder.

The supply of powder maintained for these field guns during the late war was sufficient to fill all requisitions from the field.

EXPERIMENTAL 3-INCH FIELD GUN.

Two experimental type guns of this caliber, stated in my last annual report as under manufacture, have been completed during the year, and are now ready for trial, which will be pushed to an early completion. One of these guns is constructed from a single forging, heated up and cooled from the interior in order to produce desired initial tensions in walls of the gun, and the other is a built-up gun. The projectile weighs 15 pounds and will have a muzzle velocity of about 1,650 feet, using smokeless powder. It is proposed to use a new type of shrapnel with this piece, in which the usual cast-iron separators are omitted and the lead balls are jacketed with steel. A larger number of balls is thus obtained, and increased penetration for a given velocity. This improved form of shrapnel is now undergoing test and development.

The carriages, harness, etc., required for the equipment of the field guns enumerated above, have been provided or are still under manufacture at the Rock Island Arsenal. The manufacture of this material at that point has been carried on with celerity and satisfaction.

3-INCH FIELD CARRIAGE, EXPERIMENTAL.

I stated in my last annual report that the subject of a suitable carriage for the 3-inch field gun had been under consideration, and in a general way mentioned some of the difficulties to be encountered in making a nonrecoil carriage. While the new carriage will differ materially from those now in service, the change which results from the many experiments and trials made in the past twenty years to diminish the strains on the carriage, with a view to diminishing, also, its length of recoil, can not be considered in any way a radical one, but is rather an evolution due to a better understanding of the subject and greater skill in manufacture.

To develop and use the rapid-firing field gun to the best advantage, a change in the carriages must be made; and while the principles to be attained are well understood, the subject is of such importance as to demand a practical and thorough test of different designs in order to establish the many details of construction, as well as their proper application. In the various types which have been tried abroad, some or all have had objections either in design or principle which it did not seem advisable to embody in a carriage for our service.

The information which this Department has been able to obtain has been so meager or of such doubtful accuracy that it seemed desirable to purchase abroad one carriage of each type which had developed sufficient merit in trial, profiting by the experiments which had thus far been made with them, and to submit them to an exhaustive and comparative test in this country. With this object in view, an effort was made to purchase several type carriages, but the Department was able to secure only one, the Darmancier, which is now completed and will be delivered in a few weeks. At the same time a carriage was

ordered from the Driggs-Seabury Company, of Derby, Conn., on plans submitted by that company, which will be ready for trial at an early day.

The Department is now negotiating with the American Ordnance Company for a carriage of another type suited to this gun. A carriage has also been designed by the Ordnance Department and is now being manufactured.

All of these carriages are of the nonrecoil type. In the foreign carriage the counter-recoil springs and the hydraulic cylinder are placed beneath the trail, the cylinder being fixed in the ground by a spade. This permits of the recoil of the whole carriage, while its return to the firing position is effected by the springs. In the remaining carriages the spade is attached directly to the end of the trail, and the energy of recoil is absorbed by hydraulic cylinders interposed between the gun and the carriage. In all, the gun can be traversed about 4 degrees each side of the center without disturbing the trail spade.

These carriages will be submitted to an exhaustive test, and it is hoped that early in the new year the details of a proper service carriage will be sufficiently determined to enable the work of manufacture to proceed without delay.

FIELD AND SIEGE PROJECTILES.

The sudden demands for projectiles to meet the emergencies of war have required the placing of numerous orders and contracts during the past year. It is encouraging to report, however, that no difficulty was experienced in finding that the resources of the manufacturers of the country were entirely adequate to meet this demand. Contracts for cast-iron shell, for steel shell, and for shrapnel were placed at various points in the East, West, and Middle States, and, as a general rule, the deliveries were made on time and are of satisfactory quality. The demand for work of this kind from our manufacturers was largely in excess of the available appropriations, or indeed, the needs of the Department.

At the outbreak of the war the Department had on hand about 21,000 rounds of projectiles for 3.2-inch guns, and 3,400 rounds for 3.6-inch guns and mortars. Contracts have been placed since February, 1898, for 143,000 3.2-inch projectiles, of which over 100,000 were shrapnel, and 23,000 3.6-inch projectiles, of which over 18,000 were shrapnel. The total number of projectiles on hand for the 5-inch siege rifle and the 7-inch siege howitzer and mortar at the outbreak of the war was about 6,800. Additional contracts have been placed since that time for about 54,000 additional projectiles, of which about one-fourth are shrapnel, one-fourth steel shell, and the remainder cast-iron shell. No steel shell were on hand prior to these orders, and it was necessary to make the designs before placing the orders. It is the purpose to employ in these steel shell wet gun cotton as the bursting charge. It was therefore further necessary to work up a suitable detonating fuze for this purpose. This has been accomplished. To meet the immediate wants of the service, charcoal powder was issued for the bursting charge until it could be replaced by gun cotton.

FIELD DYNAMITE GUNS.

The Department purchased from the Sims-Dudley Dynamite Gun Company 16 field guns of their design and of 2½ inches caliber, using smokeless-powder cartridges. One hundred rounds of dynamite shell per gun were procured also. These guns were issued to the troops for

service, one or more of them accompanying both the expeditions to Cuba and to Porto Rico. No reports have yet been received from the field as to the performance of these guns in actual service.

The Department has had recently under test a 3-inch dynamite field gun manufactured by the Crescent Shipyards, which is of comparatively simple construction, and probably as efficient as guns of this class can be. It is believed, however, that their use will prove quite limited.

GUNPOWDERS.

Charcoal powders.—Considerable charcoal powder has been obtained during the past year for war supplies. Recourse was had to charcoal powder in order to increase the rate of supply, but when it became apparent that no danger of attack of our seacoast was to be apprehended, orders for this kind of powder were brought to a close. It is not expected that it will be necessary to again have recourse to powder of this type, but the plant for its manufacture has been considerably increased during the past year to meet the war demand, and will for some time to come continue to be available as a means of increasing the supply of cannon powders should occasion therefor arise.

Experiments have been made with black prismatic powder for use with the 15-inch smoothbore and 8-inch converted rifle, and a quantity has been procured for reserve supply. The presses used for the brown powder can be used for this type, and the powder is more satisfactory for these pieces than the spherohexagonal. By using this type the existing plant can be utilized, and in case of urgent demand the powder could be produced more rapidly than the spherohexagonal. The charge is about 10 per cent less than that of the spherohexagonal, but the powder being of less gravimetric density, it occupies about the same space. The grains are not packed in the cartridges, as in the case of brown powder, but are poured loose into the cartridge bag.

Smokeless powder.—It was stated in my last report that our investigations had reduced the question of the most suitable smokeless powder composition to within comparatively narrow limits. The variations still to be experimented with involved the variation of the percentage of nitroglycerine between 10 and 40, and a corresponding variation of the nitration of the nitrocellulose between 13 and 11, these figures being reciprocally so adjusted as to keep the temperatures of the gases within reasonable limits as respects erosive effects.

Orders to the various manufacturers had been given in order that they might practically determine the composition most suitable from the point of view of facility of manufacture, and the powders obtained were tested to determine their relative ballistic excellence. The Department has now settled on a suitable composition for service requirements for cannon powders. It is that designated as NN (12-25), containing 25 per cent nitroglycerin and 75 per cent nitrocellulose, yielding 12 per cent nitrogen. This composition admits of being readily manufactured into grains of the desired forms, possesses excellent ballistic qualities, with allowable heating effects, and contains only a medium portion of nitroglycerin that can be firmly held without danger of exudation. Variations on this composition may be made for special cases, but it is the one which the Department accepts as generally satisfactory.

The shape of the granulation is not prescribed by the Department beyond the requirement that it must be suited to the conditions in

which the powder is to be used. A very good form is that of a cylinder with seven perforations. The length is about two and one-half times the diameter. All of the walls are of the same thickness, which is dependent upon the caliber, for upon this dimension depends mainly the quickness of the powder. Other forms are cylinders with 1, 17, 19, or 37 perforations, strips, and flat square grains. In most if not in all cases the granulation will be such that the cartridge will be put up by pouring the proper weighed amount into a cartridge bag and tying up the mouth of the bag.

The Du Pont Company has adjusted the size of the grain for all the new armament in service and is prepared to turn out the powder on demand. The Lafin & Rand Company has this adjustment made for the field and siege pieces, the 8 and 10 inch guns, and the 12-inch mortars. The other companies will soon be ready to deliver powder of suitable quickness for the various pieces also. The experiments by the Lafin & Rand Company for the development of a smokeless powder for the .30 caliber rifle have met with a good measure of success, and they are now producing a powder that is regarded as satisfactory for service use.

The experiments for the development of a satisfactory powder for the .45-caliber rifle were continued during the year, and a suitable powder was determined upon in February. It differs from the powder for the .30-caliber rifle only in being of finer granulation. This powder was adapted to the 500-grain bullet. The experiments with the 405-grain bullet had not been brought to a termination when the war broke out and stopped them. It was found desirable to use a bullet of a diameter equal to that of the bottom of the grooves in order to assure with certainty that the bullet would take the grooves and have a steady flight.

The following table shows the general ballistic data of smokeless powder with our service cannon. The charge is to be varied slightly, according to the strength of the lot of powder, in order to maintain the prescribed value of the muzzle velocity.

Piece.	Charge.	Projectile.	Pressure.	Muzzle velocity.
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Lbs. sq. in.</i>	<i>Ft. secs.</i>
3.2-inch field gun, model 1885 and 1890	1.15	13.5	32,000	a 1,685
3.6-inch field gun	1.4	20	32,000	a 1,540
3.6-inch field mortar	.38	20	16,000	b 700
3.2-inch field gun, model 1897	1	13.5	32,000	a 1,685
6-inch siege gun	4.25	45	32,000	a 1,830
7-inch siege gun	3.4	105	20,000	a 1,100
8-inch siege howitzer	70	800	35,000	2,350
10-inch rifle	140	575	35,000	2,350
12-inch rifle	240	1,000	35,000	2,350
12-inch steel mortar	50	800	33,000	a 1,325
12-inch C. I. mortar	41.5	800	28,000	a 1,360

a Same powder.

b .30-caliber magazine-rifle powder.

CARTRIDGES.

Smokeless powder being rather difficult of ignition and not flashing when ignited it is necessary, in order to prevent hang fires, to use with it specially strong primers or special igniters of flashing powder, which are included in the cartridge. Whether a strong primer or igniter is used depends on the special conditions of each case. When black powder is used for the igniter, it detracts from the quality of smokelessness of the cartridge, and the quantity should be as small as will satisfac-

torily perform the work. Investigation along this line is in progress. At present the igniter for cannon is prepared by making the cartridge bag with a double bottom and filling the bottom for a certain distance from the center with fine-grain black powder, which is held in position by quilting along circles and diameters. The end of the bag containing the priming powder is stenciled "Priming powder," and cartridges for the heavy guns are also marked with a piece of red cloth, stitched to the priming end, so as to more distinctively indicate which end is to go toward the vent.

CARTRIDGE STORAGE CASES AND POWDER STORAGE BOXES.

The policy has been adopted of having the powder packed in charges at the powder works and these charges packed in cartridge storage cases for transportation and storage. These storage cases are square wooden boxes, tin lined and fitted with a rubber gasket on which the tin-lined cover rests.

The storage cases for the 8-inch and 10-inch rifle contain each a charge consisting of two cartridges. Those for the 12-inch mortar contain two charges. The case for the 12-inch rifle charge contains two of the three sections forming the charge.

A change has been made in the dimensions of the powder storage boxes for smokeless powder. The gravimetric density of this powder being less than that of charcoal powder the size of the boxes was correspondingly increased.

RANGE TABLES FOR RIFLED MORTARS.

Range tables for the 12-inch cast iron and steel mortars with 800 and pound 1,000 projectiles and with black and brown powder were prepared and issued during the year. These tables were prepared from the result of actual firing and include drift as well as the other usual elements. They are issued in a graphic form which admits of condensing the information respecting the various charges and the range and elevation in a compact form which is at the same time convenient for use.

Experiments are under way for the construction of range tables for all the mortars for smokeless powder.

POWDER SUPPLY.

During the working season of 1897 the number of guns mounted on our fortifications was very considerably increased, but the Department had omitted to provide simultaneously a corresponding supply of brown powder owing to its desire to avoid the laying in of a considerable stock of this powder so soon to be rendered obsolete by the adoption of smokeless powder, which was felt to be close at hand.

In February a conclusion was reached as to the most suitable smokeless powder, and steps were being taken to secure a supply when the increasing prospect of war made it necessary to abandon this policy and secure a powder supply by all available methods. Accordingly the manufacturers were given orders to go ahead at their full capacity with smokeless powder, and orders for charcoal powder were given for those calibers for which such action seemed necessary, in order to obtain a supply. Under these orders there was procured by the beginning of the war a considerable quantity of charcoal and smokeless

powder, which, with the powder on hand, brought the supply up to a reasonably safe point. It soon became evident, however, that there would be no attack on our seacoast defenses, and the procurement of charcoal powder was stopped, and that of smokeless powder for heavy cannon was relaxed in order to allow an increase of the supply for field and siege guns and for the large caliber guns of the Navy, which alone was using powder for the heavy cannon.

The first issues of powder for field and siege guns as before stated were made from black powder on hand, but before the end of May a supply of smokeless powder was ready, and this was issued thereafter.

At the breaking out of hostilities the demand for smokeless powder for the .30-caliber rifle was so great as to preclude the diversion of any of it for the .45-caliber Springfield until a sufficient increase of plant could be made to meet the demand for both rifles. Then accidents at the powder works crippled for a time their output and delayed the installation of new machinery. Black powder was therefore used for a while for the Springfield cartridges. As soon as the increase of the plant permitted, the manufacture of smokeless powder for the .45-caliber Springfield was begun, and it replaced black powder in the manufacture of the cartridges. The supply of smokeless powder for the .30-caliber rifle, although at one time rendered precarious by the accidents at the powder works, was always equal to the demand.

PROJECTILES FOR SEACOAST SERVICE.

Shortly prior to the outbreak of the recent hostilities, the Department had provided the following projectiles, which were mainly on hand, though a few were still under manufacture for the 67 8-inch, 82 10-inch, 18 12-inch guns, and 217 12-inch mortars that would be mounted in the fortifications by June 30, 1898, viz:

For 8-inch guns, 9 rounds of steel and 9 rounds of cast-iron projectiles per gun.

For the 10-inch guns, 19 rounds of steel and 4 rounds of cast-iron projectiles per gun.

For 12-inch guns, 43 rounds of steel and 41 rounds of cast-iron projectiles per gun.

For 12-inch mortars, about 10 rounds of steel and 3 rounds of cast-iron projectiles per gun.

Additional contracts were placed at once with the steel makers in this country who had previously furnished projectiles, and subsequently contracts were placed with three more concerns new to the business. These contracts covered the extent of the existing plant and extensions of plant proposed by the companies for the purpose of providing an adequate supply of projectiles. By June 30, 1898, the following quantity of projectiles was on hand or under manufacture for the number of cannon of different calibers above stated, viz:

8-inch guns, 61 steel and 19 cast-iron projectiles per gun.

10-inch guns, 65 steel and 20 cast-iron projectiles per gun.

12-inch guns, 150 steel and 47 cast-iron projectiles per gun.

12-inch mortars, 32 steel and 9 cast-iron projectiles per gun.

A total of 80 projectiles per gun for 8-inch guns, 85 for 10-inch guns, 197 for 12-inch guns, and 41 for 12-inch mortars, about one-half of which are now on hand.

The supply of powder for charges fairly kept pace with the supply of projectiles. As regards the bursting charges for shell, that for cast-iron shell, which is a black, fine-grain powder, was readily provided,

and the ordinary base percussion fuse for exploding it. In the case of the steel shell the case was otherwise. It had been found that black powder exploded in the steel A. P. and D. P. shell, which have very strong walls, did not prove sufficient to break up the shell sufficiently, and in some cases blew out the base plug, leaving the shell uninjured. A more powerful explosive, therefore, seemed to be a necessity for these steel shell, and for some time experiments had been in progress for the determination of a suitable high explosive for this purpose. Tests were made with wet gun cotton, emmensite, and later with joveite, etc.

At the outbreak of the war the wet gun cotton seemed to give the most satisfactory and reliable results, all things considered, and an order was placed with the New Explosives Company, of Stowmarket, England, for about 82 tons of wet gun cotton, to be furnished in zinc cases that would fit the cavity of the projectiles for which they were intended. It was not practicable to procure gun cotton in this country at the time in any adequate quantity, as the product manufactured here was mainly consumed in the production of smokeless powder. The deliveries of the Stowmarket cotton have occurred at intervals during the summer, and it is now about all on hand, part in the fortifications and part at the United States Powder Depot, Dover, N. J. There are still questions remaining to be settled as to the best form of packing the gun cotton in the shell and the method of issuing it to service, and fuller knowledge of the qualities of joveite and its suitability for a filling charge and the use of smokeless powder in coarse grains for A. P. shot. Small-arms smokeless powder tested in considerable charges in A. P. and D. P. shell proved extremely dangerous, but it is supposed that in the very small charges required for A. P. shot this powder might be used, employing a simple percussion fuse for exploding it. Further investigations and experiments on the above questions are now going on.

In connection with the tests of high explosives for projectiles, it was necessary to devise and work up a suitable fulminate or detonating fuse, in order to secure the full effect of the gun cotton or other charge upon explosion. This has been successfully accomplished in the new-service detonating fuse.

As regards the supply of cast-iron projectiles, no difficulty was experienced. A general advertisement was sent out to the cast-iron manufacturers, and many bids for supplying the projectiles required were received, the number in fact being far in excess of the requirements of the Department. Except for field, and possibly the siege, service, cast-iron projectiles have a quite limited use, now that much superior projectiles of steel can be so readily and reasonably obtained.

THE BOARD ON POWDER AND HIGH EXPLOSIVES.

The experiments of this board have lately been more particularly directed to the development of a suitable delay action with the service detonating fuse, and the best method of employing gun cotton as a bursting charge for shell.

FUSES.

From the results of numerous experiments made, it appears that the present delay action in the service detonating fuse, as employed for A. P. and torpedo shell, gives rather too great delay (about five one-thousandths of a second is thought, in the absence of direct experi-

ment, to be best), but are still fairly suitable. The nondelay action appears to give a delay more satisfactory for fuses for A. P. and torpedo shell than that at present employed. The D. P. fuses having the present delay action for detonating fuse give too little delay to allow the projectile to reach the protective deck in many cases after passing through the upper decks. Some modification of the delay action will therefore be made in this fuse.

EXPLOSIVES FOR SHELL CHARGES.

Experiments have been made to determine the best method of packing the gun cotton now used for shell charges, of storing and transporting these charges, and for charging the shells before shipment to fortifications and also at the fortifications. Experiments have also been in progress with other explosives of higher power and less cost than gun cotton, but these last have not resulted in such satisfactory results as to lead to their adoption. These experiments are still in progress.

TELESCOPIC SIGHTS.

The seventy Scott telescopic sights which I mentioned in my last report as having been ordered abroad have been delayed in delivery on account of the war. This emergency made it imperative that sights should be procured in this country, and an order for 150 was placed with Messrs. Warner & Swasey, of Cleveland, Ohio. These sights were completed in a very short time and were immediately issued to the service. These sights resembled the Scott sight, but produced an erect image by means of Brashear prisms, which had been added without increasing the diameter or length of the telescopic tube.

The subject of a proper telescopic sight for our service is important and has had the consideration of this Department for some time. After the trial of many designs it appeared that the advantages of the Scott sight were so great as to forbid an order for any considerable number of sights in this country until the matter could be further developed. It must be borne in mind that the conditions for a proper sight are peculiar to the military service, and as the demand is limited, instrument makers are loath to devote any great amount of time to such an instrument without some assurance as to the result. It has seemed, therefore, that its development has necessarily depended upon those who are conversant with its objects.

While, as stated above, the Scott sight was considered superior to any of which the Department had knowledge, it had objections which it seemed necessary to overcome in a thoroughly satisfactory sight for our service. A sight made by Stackpole, of New York City, was tested, and while it possessed certain advantages and improvements, it did not on the whole meet the Department's requirements. About this time an order was given to Messrs. Warner & Swasey to produce one sight to meet the requirement of the Ordnance Department. The result was most encouraging, and now that a few minor changes in detail have been made, it is believed we have a sight which is superior to any thus far manufactured. It is of the same weight and dimensions as the Scott sight, and has a field of view of 6 degrees with a magnifying power of 8. Brashear prisms are used to give an erect image. The deflection scale is graduated to 3 minutes of arc, and the greatest reading is 2 degrees 30 minutes each side of 0. The deflection can be adjusted by means of an outside scale, or at any time by the gunner without removing the eyepiece. It is

adapted for indirect laying and for field, siege, and seacoast service. One hundred and eighty-five of these new sights, termed model of 1898, are being manufactured and issued to the service. With the completion of this order the Department will have procured 435 telescopic sights, which includes 100 purchased abroad.

RANGE FINDERS.

The subject of range finders has been considered by the Department for some years, but the question had been put under charge of a board having special duties to perform with reference to the matter. Shortly before the outbreak of hostilities this board had reported the adoption for primary stations of the Lewis range finder. For the secondary stations they reported that either the Lewis or the Rafferty range finder might be used. A very small number of these had been procured and were principally used experimentally, but it was necessary to provide them for all seacoast fortifications. As the recommendation of the board with reference to the range finders for the secondary stations was not entirely definite, application was made to the Board of Ordnance and Fortification for determination as to which range finder for secondary stations, if either, should be given the preference.

In reply, the board stated that in general the Lewis and the Rafferty range finders would be serviceable, and that it should be determined by the one which could be procured for the least money. On investigation it appeared that the Lewis range finder would cost about \$500, the Rafferty range finder a little in excess of \$800; consequently Lewis range finders were ordered to the extent of 100 for secondary stations. As the Lewis range finders had been adopted for primary stations, there was no difficulty in determining what should be ordered, and 100 of these were ordered for primary stations. The company which furnishes these range finders entered into a contract to furnish them very promptly and as rapidly as procured they were distributed. They have not yet all been received, but as fast as possible they are forwarded to the stations for which they are intended. They require graduation dependent upon the height of the position that they are intended to occupy. In case, by any accident, this height has not been accurately determined, there is an inexpensive method of correcting the defect by changing certain minor parts of the instrument.

In addition to these range finders for permanent posts, 32 azimuth instruments were procured for use with the siege train. These instruments are accurately constructed and are believed to be very useful for obtaining the ranges in siege batteries. While a number have been procured and were issued, there has been no occasion to put them to practical use in the service so far, but they are on hand for any future use that may be required of them.

I have the honor to submit herewith the following papers as appendices to this report:

Appendix 1.—Report of action taken during the year ending June 30, 1897, under the provisions of the act approved March 3, 1881.

REPORT FROM ROCK ISLAND ARSENAL.

Appendix 2.—Extract from report of principal operations (13 plates).

REPORT FROM SPRINGFIELD ARMORY.

Appendix 3.—Report of principal operations.

REPORTS FROM FRANKFORD ARSENAL.

Appendix 4.—Report of principal operations.

Appendix 5.—Report of laboratory work.

REPORT FROM WATERVLIET ARSENAL.

Appendix 6.—Report of principal operations.

REPORT FROM WATERTOWN ARSENAL.

Appendix 7.—Report of principal operations.

REPORTS FROM ORDNANCE PROVING GROUND, SANDY HOOK, NEW JERSEY.

Appendix 8.—Extract from report of principal operations.

Appendix 9.—Summary of tests of powders.

Appendix 10.—Tests of Joveite.

MANUFACTURE OF POWDERS.

Appendix 11.—Report of the inspector of powder.

CONSTRUCTION OF ORDNANCE.

Appendix 12.—Progress report of the inspector of ordnance on the manufacture of steel forgings, castings, etc., for guns, carriages, and projectiles, at the Midvale Steel Works, Philadelphia, Pa.

Appendix 13.—Progress report of the inspector of ordnance on the manufacture of steel forgings, castings, etc., for guns, carriages, and projectiles, at the Bethlehem Iron Works, South Bethlehem, Pa.

Appendix 14.—Progress report on the manufacture of 12-inch B. L. mortars, mortar carriages, and projectiles, by the inspector of ordnance at Providence, R. I.

Appendix 15.—Progress report on the manufacture of 12-inch B. L. mortars and gun carriages, by the inspector of ordnance at Hamilton, Ohio.

Appendix 16.—Report on manufacture of three and two-tenth inch shrapnel, at the works of the Falls Rivet and Machinery Co., at Cuyahoga Falls, Ohio.

REPORTS FROM THE ORDNANCE BOARD.

Appendix 17.—Report of the test of a Barr & Stroud fortress range-finder (3 plates).

REPORTS FROM THE BOARD ON POWDER AND HIGH EXPLOSIVES.

Appendix 18.—Progress report on powders and explosives.

MISCELLANEOUS.

Appendix 19.—Report of the board convened at Camp Wikoff, Montauk Point, Long Island, New York, on the action in active service of calibers .30 magazine rifle and .45 Springfield rifle and their ammunition, and the field guns with their ammunition and equipments.

Appendix 20.—Extract from report of Lieut. Col. H. D. Borup, United States Volunteers, chief ordnance officer, on the Spanish armament of the defenses at Santiago de Cuba.

Appendix 21.—Report of operations of the Ordnance Department at Port Tampa City, Fla., by Lieut. Col. John T. Thompson, United States Volunteers, chief ordnance officer.

Appendix 22.—Discussion of the requirements of a modern field gun carriage, by Capt. Charles B. Wheeler, Ordnance Department, United States Army.

Appendix 23.—Discussion of shrinkage operations and a proper heating furnace for hoops and jackets, by Lieut. George W. Burr, Ordnance Department, United States Army.

Appendix 24.—Description of the Sims-Dudley 2½-inch dynamite field gun.

I have the honor to be, very respectfully,

D. W. FLAGLER,

*Brigadier-General, Chief of Ordnance,
United States Army.*

THE SECRETARY OF WAR.

* * * * *

APPENDIX 19.

Report of the board convened at Camp Wikoff, Montauk Point, Long Island, New York, on the action in active service of calibers .30 magazine rifle and .45 Springfield rifle and their ammunition, and the field guns with their ammunition and equipments.

Proceedings of a board of officers convened by the following order:

SPECIAL ORDERS, }
No. 212. }

WAR DEPARTMENT,
ADJUTANT-GENERAL'S OFFICE,
Washington, September 8, 1898.

[Extract.]

1. A board of officers, to consist of Major Stanhope E. Blunt, Ordnance Department, U. S. Army; Major Daniel M. Taylor, Ordnance Department, U. S. Army; Captain Beverly W. Dunn, Ordnance Department, U. S. Army, and First Lieutenant George W. Burr, Ordnance Department, U. S. Army, is constituted to meet, at the call of the president thereof, at Camp Wikoff, Montauk Point, Long Island, New York, for conference with officers who were at Santiago, Cuba, with a view of obtaining information useful to the Ordnance Department concerning the action in active service of the caliber .30 magazine rifle and its ammunition, the caliber .45 Springfield rifle and its ammunition, and the modern field artillery with its ammunition and equipments.

The junior member of the board will record its proceedings.

The commanding general at Camp Wikoff will direct officers of his command who may be able to give information useful to the board to appear before it at such times as they can be spared without interfering with their other duties.

The travel required by the members of the board in attending its sessions and returning to their stations upon the completion of their duties as members of the board is necessary for the public service.

* * * * *

By order of the Secretary of War:

H. C. CORBIN, *Adjutant-General.*

This order was subsequently amended by Special Orders, No. 216, Headquarters of the Army, Adjutant-General's Office, Washington, September 13, 1898, relieving Lieutenant Burr as member of the Board and substituting Lieut. George Montgomery, Ordnance Department, United States Army.

CAMP WIKOFF,
Montauk Point, Long Island, September 16, 1898.

The Board met pursuant to the foregoing order. Present, all the members. The Board, having reported to Major-General Shafter, received a letter from him authorizing the Board to visit the different commands and directing that all officers furnish the Board with the facilities and information desired.

A letter of instructions from the Chief of Ordnance was laid before the Board by the president thereof.

The Board then visited and conferred with the officers present of the Twenty-fourth and First Infantry and of Batteries A and B of the First Artillery.

The Board then adjourned to meet the following day.

CAMP WIKOFF,
Montauk Point, Long Island, September 17, 1898.

The Board met pursuant to adjournment. Present, all the members.

The Board then visited and conferred with the officer then commanding the light artillery brigade, and the officers present of the following commands constituting that brigade: Light Batteries E and K, First Artillery; A and F, Second Artillery; F, Fourth Artillery, and F, Fifth Artillery. In the afternoon the Board visited and conferred with the officer commanding the cavalry division and the officers present of the following regiments in that division: First Cavalry, Second Cavalry, and Third Cavalry.

The Board then adjourned to meet the following day.

CAMP WIKOFF,
Montauk Point, Long Island, September 18, 1898.

The Board met pursuant to adjournment. Present, all the members.

The Board then visited and conferred with the officers present of the following regiments: Sixth Cavalry, Ninth Cavalry, Tenth Cavalry, Sixteenth Infantry, Eighth Infantry, Twenty-fifth Infantry, and Seventh Infantry.

No other regiments or batteries which had been at Santiago remaining in camp which had not been visited, the Board then adjourned, to meet in New York City for final consideration of its conclusions and preparation of its report.

NEW YORK CITY, *September 23, 1898.*

The Board met pursuant to adjournment. Present, all the members.

As a result of its conference with officers of the commands previously mentioned and of its examination of many of the articles of equipment used by these commands, the Board reports that the .30-caliber rifle, carbine, and ammunition gave almost universal satisfaction in the Santiago campaign. There was not a single case reported of a defective cartridge. The officers present in that campaign invariably report that the breech mechanism could not have been subjected to a more severe service trial; since in that climate, as they expressed it, "everything rusts." As a conspicuous example, Lieut. H. M. Reeve informed the Board that a .30-caliber rifle which had been injured in action by a bullet striking the stock was stacked with others in front of General Young's tent, where it remained entirely unprotected from the tropical rains and received no care whatever. Lieutenant Reeve, about a month thereafter, tried this rifle with its ammunition and found it to work satisfactorily. There were a few rare cases of the sear failing to retain the cocking piece in the withdrawn position. One troop commander reported difficulty in the working of some breech mechanisms of carbines in his troop; but he stated that he had not investigated the matter and could not inform the Board definitely as to what was the matter.

There were a few cases reported of a breaking of the cut-off and safety lock, but these parts, the Board understands, are strengthened in present manufacture.

Rifles and carbines were used almost entirely as single loaders, with the magazine in reserve. There was only one complaint of any difficulty in charging the magazine, though several officers expressed their desire for a clip or other means of carrying a portion of the cartridges in some form of packet from which the magazine could be directly charged.

The Board found no regiments at Camp Wikoff which had used the .45-caliber Springfield in the Santiago campaign, but those officers who saw it working under battle conditions unite in condemning its use with black or smoke powder.

Without exception every officer stated his preference for the .30-caliber rifle to the .45-caliber Springfield, even with a smokeless-powder cartridge.

With the exception of the capacity of the haversack, the equipment of the soldier was stated to be all that could be desired. The blanket bag was not used at all, and all the officers were of the opinion that it was useless for field service, and that a blanket roll was preferable and all that was necessary. In barracks the blanket bag is occasionally a useful valise for holding the soldier's spare clothing.

The haversack will barely hold two days' rations, and is therein defective, as the troops were called upon to carry a greater supply. A few officers favor an oilskin lining, to prevent absorption of grease from the bacon.

The cavalry was all dismounted in this campaign with the exception of four troops, and of these only one officer was present at Camp Wikoff at the time of the Board's visit. This officer had no criticism to make of the horse equipment, having found it uniformly satisfactory.

Of the light artillery it can be stated that, notwithstanding the rough service it had undergone, the batteries are still serviceable; or, to quote the language of a battery commander, "are in good fighting condition."

The harness was particularly satisfactory, only some minor defects hereinafter enumerated having developed.

There were no adverse criticisms of the 3.2-inch rifle. In one battery, Parkhurst's, of the Second Artillery, the breech mechanism of one gun when much heated worked with some little difficulty, which disappeared when the parts were allowed to cool. No reliable information could be obtained as to the source of this trouble. In gun No. 21, Grimes's Battery, a burr was developed in the locking recess for the latch pin, and an enlargement of this recess; but these defects are not at all serious, and while they make the first motion of translation a little difficult, they have no further detrimental effect on the working of the breech mechanism. In some rifles the copper vent bushings were blown out in action, and this the board considers the only serious defect developed in the breech mechanism.

The gun carriages behaved well in action. In Capron's Battery the flange of one flask was slightly cracked. On one battery a wheel of the gun limber had three cracked spokes, but this the officers stated must have been done on the transport. Five bow-spring brakes were broken in action in Capron's Battery. These brakes, the board understands, belong to an earlier manufacture, and are not as strong as those now issued.

The shrapnel gave general satisfaction, though there was one instance of a shrapnel breaking up in the gun. It should be noted, however, that this battery had some of the condemned electrically welded shrapnel, though the chief of section was of the opinion that none had been fired.

The use of black or smoke powder was universally condemned by every officer, revealing as it did the position of the guns to the enemy. The Spanish batteries used smokeless powder, and the position of their guns could consequently not be determined.

Artillery officers were questioned particularly with respect to the action of the fuses, and they had no failures to report. So far as could be seen, all time fuses caused the shrapnel to burst in air, apparently at the proper range; and the base percussion fuses operated satisfactorily.

The present service sight for field guns is not satisfactory for the longer ranges. The peephole is not large enough to convey to the eye the maximum amount of light that the eye can receive. The artillery officers believe that a telescopic sight is indispensable. On one occasion Parkhurst's Battery received orders to be prepared to repel a night attack, and the only method that suggested itself to the officer commanding the battery was to place a row of stakes in the ground to give direction. No quadrants or other means were available for giving elevation.

A telescopic gun sight that could be laid on an artificial star in rear of the battery would improve this method of gun laying.

There were no artillery officers present at Camp Wikoff who had served with the siege train, and therefore no information could be obtained on that subject.

The Board enumerates in detail the following defects which were developed in this campaign, and such consequent changes as the Board believes would improve the equipment and give greater satisfaction to the three arms of the service.

These defects and recommended changes are enumerated under the arm of the service to which they pertain. The changes recommended in the rifle apply equally well to the carbine.

CAVALRY.

First. The present horse equipment made of black leather would give greater satisfaction if made of fair or russet leather, and the Board recommends such a change.

Second. The bar and ring for the carbine sling is entirely unnecessary, and its removal from the carbine stock is recommended. The carbine sling is no longer used when the scabbard forms part of the equipment.

Third. There often exists a necessity for quickly detaching the carbine scabbard from the saddle, and, in addition to the buckles, spring catches are necessary for this purpose.

INFANTRY.

First. The addition to the sight of a proper drift correction and a wind gauge is essential if the .30 caliber rifle and carbine are to be perfectly satisfactory weapons to the infantry and cavalry arms; these features being generally deemed essential for the proper instruction of all soldiers in small-arms firing and the development of confidence in their weapon and in themselves; also for the use of sharpshooters or for particular aiming in battle.

Second. The lug on the gate of the magazine wears easily and should be hardened. It is understood that is now being done.

Third. The hook of the bayonet scabbard is weak, and the swivel permits the bayonet to swing around completely, allowing the bayonet in some cases to drop from the scabbard. This last defect, it is understood, has been remedied in scabbards now being manufactured.

Fourth. The sear springs in a few of the rifles are weak. One (No. 11728) was shown to the Board.

Fifth. The blueing of the cut-off is considered objectionable, as it renders the cut-off inconspicuous, and consequently it is difficult for a company officer at a distance to determine whether the magazine is on or off.

Sixth. It is essential for the proper care of the gun that an oiler holding a liberal supply of oil be carried by each soldier. This is particularly necessary in a climate like that of Cuba, where a gun rusts very quickly.

Seventh. The bayonet was found not sharp enough for cutting branches or brush.

Eighth. The cartridge belt was a subject of serious complaint in that it let the cartridges drop from it when the men were lying down, or the belt was thrown off for any purpose. It is believed essential that this difficulty be overcome, if possible.

Ninth. The haversack should be enlarged.

Tenth. The canteen strap cuts into the shoulder. It should be made more like the haversack strap.

Eleventh. The ammunition boxes are objected to on account of the time and appliances required to open them.

Twelfth. A range finder, giving distances up to 1,000 or 1,500 yards with an error not exceeding 100 yards, which could be readily used by a noncommissioned officer, would have been of considerable value in this campaign.

ARTILLERY.

First. The peephole in the service sight is too small, and the sight does not give satisfaction for the longer ranges. The level is also easily broken during drill. The enlargement of the peephole would make the sight more satisfactory, but it would be at the expense of its accuracy.

Second. The clevis shank of the bow spring brake should be made longer to prevent dust from entering the clevis shank slot.

Third. The breech covers wear out very easily, and it is thought it is due to the paint weakening the canvas.

Fourth. A bent socket wrench should be provided for the nuts underneath the limber, which secure the ammunition chest.

Fifth. The lantern attachment is weak and defective for field service and should be discarded.

Sixth. The steel collar which slides over the ferrule joint of the sponge and rammer staff rusts easily, which prevents the easy motion of the collar. The ferrule joint should be made longer, and all the metal parts made of phosphor bronze, or other nonrusting material.

Seventh. All the compartments in the trail should have floors and covers if found practicable in construction.

Eighth. The screw covers for the primer boxes work loose in transportation, and where they are made tight enough to stand transportation they are exceedingly difficult to unscrew. Some batteries use them for primers and some do not. It is believed that they should be so made as to be easily unscrewed, and be provided with a securing device.

Ninth. The connecting rod for the caisson road brake is too weak, and the shoe is too soft. Both defects should be remedied.

Tenth. The pole prop and its attachment to the pole are not sufficiently strong and stiff to support the pole when the harness is placed thereon.

Eleventh. The grease can leaks at the sides, due to the soldering giving way. This should be remedied in future construction.

Twelfth. A leather case should be provided for the sperm-oil can.

Thirteenth. In Taylor's battery a leather hood was made which inclosed the hub of the wheel and prevented dust from reaching the running parts in that location. A leather collar was also used, which, embracing the axle body, prevented dust from getting into the running parts between the wheel and the axle body. The hood also prevented linchpin from dropping or being broken going through brush. The introduction into the service of these or similar devices is recommended.

Fourteenth. The securing chain hooks on the singletrees should be strengthened.

Fifteenth. The whip is too long. It should have a 2-foot lash and a 2-foot handle, and the latter should have a leather instead of a cane center.

Sixteenth. The bolt of the collar lock is too light for the purpose and should be strengthened.

Seventeenth. The wearing of the rings attached to the singletrees and doubletrees is considerable, and if practicable should be remedied.

Eighteenth. The ammunition chests should be provided with additional hooks to suspend the locks when the chests are unlocked.

Nineteenth. The amount of harness supplies and cosmoline should be increased by one-half.

The Board desires to report that, taken as a whole, the entire ordnance equipment for artillery, cavalry, and infantry, including ammunition, with the exceptions noted, stood admirably the test of the most severe field service, and received high commendation from officers who closely observed it on the march and in action; and the Board is of the opinion that with the changes recommended it will be entirely satisfactory.

The Board, having concluded its labors, adjourned sine die.

S. E. BLUNT,

Major, Ordnance Department, U. S. A., President.

D. M. TAYLOR,

Major, Ordnance Department, U. S. A., Member.

B. W. DUNN,

Captain, Ordnance Department, U. S. A., Member.

GEORGE MONTGOMERY,

First Lieutenant, Ordnance Department, U. S. A., Recorder.

APPENDIX 20.

Extract from report of Lieut. Col. H. D. Borup, United States Volunteers, chief ordnance officer, on the Spanish armament of the defenses at Santiago de Cuba.

THE WATER-FRONT DEFENSES* OF SANTIAGO.

The harbor or bay of Santiago may be roughly compared to the human leg, from the knee down, in the act of walking, just as the toes are leaving the ground, the instep being well raised. The town itself, being situated just below the knee in front, is therefore completely hidden, the land on this side being high, as well as that on the other side at the entrance of the harbor.

Continuing the simile, if defenses be placed on either side of the foot and at the instep, a strong line is occupied. On account of the narrowness of the port at this place guns not at the entrance have a very limited field of fire, and practically could only be employed against ships in the act of coming in. The defenses naturally arrange themselves into two classes, the outer and the inner group.

The former comprises Morro Castle, the battery east of it, both on the eastern bank at the entrance, and Upper Socapa, on the western side.

The inner group is made up of the Estrella Battery, those at Lower Socapa, St. Catalina, Punta Gorda, and Punta Blanca. The second is on the west: the other three on the east, the latter being well up the bay, near the southern edge of the city.

OUTER GROUP.

MORRO CASTLE.

Morro Castle is an ancient structure, valuable as an addition to the scenery, but worthless as against heavy modern guns. The Spaniards evidently took this view, for no firing has probably been done from it in

* Exclusive of torpedo lines.

years. Except as noted below no guns nor carriages are in position. Those mounted consist of five bronze mortars and two siege guns, all on the upper terreplein or roof of the castle.

There are three 13-inch mortars, made in 1724, 1733, and 1737, and two 9.5-inch ones, cast in 1780 and 1781.

The two 24-pounder siege guns are mounted on old wooden carriages and date from 1748 and 1755.

In passing it may be noted that the castle suffered little damage by the bombardment. The walls are thin and the holes made are clean.

EASTERN BATTERY.

Recognizing the uselessness of the castle and the importance of the site, the Spaniards constructed a battery a little to the east for seven pieces. The first five have the earth revetted with filled barrels. The protection for the other two is a row of square boxes, 2 feet 6 inches high, having on top a single row of ordinary barrels all filled with concrete. Total height, 5 feet. In front of the boxes for about one-half the length is a double row of sacks similarly filled.

The magazine, a temporary wooden shed, is a little in rear on the reverse slope of the hill, and is connected by trenches with the different emplacements.

The pieces are obsolete converted muzzle-loading rifles, five being bronze 6.3-inch guns and two cast-iron 8.5-inch howitzers. The former have three wide grooves and the latter six. The guns date from 1718, 1768, 1769, 1779, and 1783. I did not notice any dates on the howitzers, but they are obsolete and go back to the time of studded projectiles, which were the only ones employed here.

The carriages are old seacoast mounts and were not intended for these guns, as the trunnion beds are too large. An attempt was made to remedy the defect by putting rings on the trunnions, none of which fit. Piece No. 2 has none, though there is a difference of 2 inches in the diameter of the trunnion and its bed. Cap squares are not provided for.

The projectiles are poorly made, point fuse, cast-iron affairs, with three or six studs in one or two rows each. Some have hemispherical heads.

Black prismatic powder, with several holes, made in 1887, was employed. Piece No. 1 was dismounted by a navy projectile. I do not think it was hit directly, as neither it nor the carriage has any mark that I can find. The epaulement is demolished, and the concussion may have knocked the gun and top carriage off, as neither were strongly secured. This is the only piece dismounted by the Navy.

UPPER SOCAPA.

The battery at this point consists of five pieces, the two on the right being navy 6.3-inch B. L. R. Hontoria guns, and the others 8.5-inch howitzers, the same as at the Eastern Battery. The earthwork in front of the former is well made, being formed of bags of concrete 15 feet thick at top; the height above the emplacement being 3 feet. The protection given the other pieces is slight. No. 1 is composed of boxes and one row of barrels; No. 2 of boxes only; No. 3 has nothing. Barrels and boxes are filled with concrete. The guns are mounted on Vavasseur carriages. Both were taken from the *Reina Mercedes*, sunk not far from the *Merrimac*.

One of them was rendered useless by a navy shell hitting the shield

near the junction with the right cheek of the carriage, knocking a small piece out of the former and cracking the latter.

A more or less accurate approximate estimate of the number of rounds fired from these guns is given by the copper cases containing the powder found in the magazine. There are 26 of these, each holding 6 charges, or a total of 156. One hundred and nineteen are left, which would make 37 rounds fired.

Several navy shells lie close to the magazine. Had any of them exploded the damage would have been great.

INNER GROUP.

About a quarter of a mile from the entrance on the east and west sides, respectively, are the batteries of Estrella and Lower Socapa.

ESTRELLA.

Estrella resembles a short length of a mountain road with a steep hill at the back and a sharp fall on the other side, protected by a low masonry wall about 3 or 4 feet thick. Two howitzers, similar to those already described, form the armament here. A navy projectile knocked in the roof of the shell room, but no other damage was done, though several round shells filled and fused are there.

LOWER SOCAPA.

Opposite Estrella, and not far from the water, is a weak breastwork, mounting four 1-inch Hotchkiss revolving cannon, and not far away is a 2.5-cm. rapid-fire Nordenfelt. A 5-cm. gun of this make was installed in this vicinity but can not be found. All of these were taken from the *Reina Mercedes*.

Higher up, between this and Upper Socapa, are emplacements for four light pieces, never occupied.

ST. CATALINA FORT.

St. Catalina Fort is a diminutive walled inclosure close to the water edge. It is about 50 by 30 feet, and appears to have been long since abandoned. No ordnance of any description is there. The rear wall is demolished, probably by a navy shell.

PUNTA GORDA.

Farther up the bay, and directly opposite the entrance, is Punta Gorda, on which the Spaniards mounted four pieces. Two 6.3-inch Hontorias, similar to those at Upper Socapa, are mounted behind well-constructed earthworks at different levels, the upper one being about 50 feet or so from the crest of the hill.

According to the method employed at Socapa these guns were fired four or five times.

On the summit of the hill and a little to the east four pits are made, two only of which are occupied. The armament here is two 6-inch B. L. R. howitzers made of compressed bronze, mounted on iron siege carriages, with recoil cylinder, one end attached to the platform.

PUNTA BLANCA.

This point is defended by a semicircular brick wall 6 feet 6 inches thick at top. It has emplacements for six guns, though only two are mounted there at present. They are bronze 4½-inch, muzzle-loading,

smoothbores, cast in 1775. The carriages are of the seacoast type, and are made of wood now in a state of decay.

NOTE.—Here follows a detailed description of the guns and certain recommendations, which are omitted.

RÉSUMÉ.

Before the outbreak of hostilities the port defenses of Santiago consisted of four antiquated forts or batteries, of which one, St. Catalina, was abandoned, and a second, Punta Blanca, from its position, useless. Of the other two, Morro Castle constituted the outer line and Estrella the inner one. The armament of the former consisted of five ancient mortars and two siege guns, and the latter of two obsolete cast-iron howitzer, all of feeble power.

After war was declared four batteries were hastily improvised, all of weak profile.

Including all forts and batteries, the number of guns may be thus stated:

OBSOLETE.

Bronze muzzle-loading smoothbores:

Guns—	
6-inch	2
4½-inch	2
Mortars—	
13-inch	3
9½-inch	2
Muzzle-loading converted rifles:	
Bronze guns, 6.3-inch	5
Cast-iron howitzers, 8.5-inch	7

MODERN.

Steel breech-loading rifles, 6.3-inch	4
Bronze breech-loading howitzers, 6-inch	2
Revolving cannon, 1-inch	4
Rapid fire:	
1-inch	1
2-inch	1
Total	33

Or 21 obsolete and 12 modern pieces, and of the latter 4 only are of comparatively high power.

The exterior line consisted of 17 obsolete and 2 modern pieces, the former being furnished by the Spanish war department and the latter by the navy department. The bold front put up by the former seems to have been effective. The real strength, however, lay in the guns taken from the *Reina Mercedes*, so that the duel between the fleet and land was practically fought by the navy of both powers. After one of these guns was disabled by its carriage being rendered hors de combat, the outer defense was really confided to a single piece.

The defenses of Santiago constitute a veritable artillery museum. If there are any lessons to be learned from the naval part of the campaign, one is that if a nation does not in peace have a thoroughly equipped information service, it runs the risk of having its fleet immobilized when such action may be unnecessary.

H. D. BORUP,
Lieutenant-Colonel, United States Volunteers,
Chief Ordnance Officer.

SANTIAGO DE CUBA, October 6, 1898.

The CHIEF OF ORDNANCE, U. S. ARMY.

D. C.

APPENDIX 21.

Report of operations of the Ordnance Department at Port Tampa City, Fla., by Lieut. Col. John T. Thompson, U. S. Volunteers, Chief Ordnance Officer.

ORDNANCE DEPOT,
Port Tampa City, Fla., September 9, 1898.

SIR: I have the honor to submit the following report of the operations of this depot:

ORGANIZATION OF DEPOT.

Pursuant to paragraph 6, Special Orders, No. 97, Headquarters of the Army, Washington, April 26, 1898, I arrived at Tampa April 28, and the next day two train loads of ordnance and ordnance stores were received, followed by numerous cars containing ammunition. The work of organization of depot was then begun. To carry on the work of such a depot in time of war required the services of trained men. Upon application, a clerk, storekeeper, armorer, machinist, packer, and saddler were sent to depot. The other part of the force was hired here.

ARMAMENT AND EQUIPMENT OF FIFTH CORPS.

May 7 I was directed by letter from Maj. Gen. W. R. Shafter, commanding United States forces, Tampa, to load the arms and ordnance stores, including ammunition, upon the transports. Each ship was loaded with a proportion of these stores, in order that it could be sent separately if necessary. While on cars and after loading on transports these stores were at all times properly guarded. On May 18 the remaining ordnance and ordnance stores were unloaded in the Brantley warehouse at Port Tampa City, which was afterwards made an ammunition storehouse. In the meantime the lower floor of a building in Tampa, known as the Toronto Inn, was secured as a storehouse, and the arms and equipments for regulars and volunteers stored and issued. The requests for arms, equipments, and ammunition had been previously made, after consultation from time to time with Major-General Shafter, in sufficient quantities to meet all probable demands upon the depot. The regular infantry and cavalry regiments came to Tampa well supplied, as usual, with arms and equipments for the authorized peace strength. The work then consisted simply in arming and equipping the extra war battalion and the recruits for the other companies to raise them to a war strength. Many of these recruits came from Atlanta already armed and equipped and the remainder were supplied from this depot. The cavalry went to Cuba dismounted, and made a heavy draft upon this depot for some four thousand haversacks and straps, which were promptly supplied. There were plenty of arms and caliber .30 ball cartridges, and the equipments received were issued as promptly as possible. No trouble was spared to equip the troops with as little delay as possible. The strict provisions for the supply of troops in time of peace were relaxed as far as consistent with properly accounting for the stores. There was no hesitation at any time upon issuing arms, equipments, and ammunition to troops whenever found needed. Officers of the various volunteer regiments were instructed as to making out requisitions and other papers pertaining to their duty.

Having been appointed ordnance officer upon the staff of the major-general commanding the United States forces, Tampa, Fla., I was in close touch with the needs of the whole command and the order in which the major-general commanding desired them to be filled. Their needs were promptly communicated to the Ordnance Office by telegrams, and the office kept informed of the needs of the forces at Tampa and vicinity. These requests were in all cases met with prompt replies, indicating that this point was then receiving first consideration in the supply of arms, equipments, and ammunition. Major-General Miles, commanding the Army, fortold the probable wants of the Army as regards small-arms ammunition, and these amounts were placed at disposal of depot.

The supply of ordnance and ordnance stores to the volunteers received from the beginning prompt and careful consideration. The major-general commanding here directed the order of issue of same to the various regiments of the Fifth Corps and the volunteer troops under his command.

About May 28 another building in Tampa, known as the Athletic Club Building, centrally located between the various camps and near to headquarters, was secured. In order to have a proper place for the storage of the magazine rifles and other arms on hand, the Athletic Club storehouse and Toronto Inn storeroom were abandoned and a brick building at Port Tampa City, known as Printery Building, was rented by the depot quartermaster, upon approval of Major-General Shafter, and assigned to this depot. A railroad track was built from the main line to the building, facilitating the movement of stores.

LIGHT ARTILLERY BRIGADE AMMUNITION SUPPLY.

In the meantime the supply of ammunition to the ten batteries of the Light Artillery Brigade was carried on, and the probable requirement of the brigade as to ammunition for the coming campaign was found out and sent promptly to your office. The same course was pursued as to the equipment of the Hospital and Signal Corps.

SIEGE TRAIN.

About May 29 the work of arming and supplying the siege artillery was undertaken. This was a work of considerable magnitude considering the short time allowed. By June 7 the siege batteries of Ennis's (G, Fourth Artillery) and Cummins's (H, Fourth Artillery) were supplied with four 5-inch siege guns, four 7-inch siege howitzers, and eight 3.6-inch field mortars, together with equipments and ammunition for same. These two batteries embarked on the expedition of June 14 under General Shafter. The work of supplying the other batteries of the siege train with siege guns, siege howitzers, siege mortars, heavy field guns, and field mortars was continued.

EXPEDITION OF JUNE 14, 1898.

Most of the ordnance and ordnance stores required to be sent to Santiago with this expedition had been loaded upon the transports some time previous to June 1, with the exception of loading the reserve caliber .30 ammunition for the regular troops, which was completed before the expedition sailed. While the troops were embarking I was at Port Tampa and passed constantly among the regular

troops. Upon these occasions I took occasion to look over their arms and equipments. From my knowledge as ordnance officer of the United States troops of their condition, I can state that the troops of the Regular Army were well supplied with arms and equipments, and that there was a supply of 500 rounds caliber .30 ball cartridges per man, counting those known to be in the hands of troops and the large reserve supply. This amount was considered amply sufficient for the needs of the command, and was still further added to by additional shipments as opportunity occurred. The two volunteer regiments, the Seventy-first New York and Second Massachusetts Volunteers, were fully armed with serviceable Springfield rifles, caliber .45, well equipped, and had a supply of ball cartridges, with regiments and aboard transports, of over 1,000 per man. It is believed that at no time during the campaign was there a lack of ammunition at Santiago.

EQUIPPING THE FOURTH CORPS.

Upon departure of the expedition the work of completing the equipment of the Fourth Corps was taken up and continued as additional companies and recruits for the different regiments were received from time to time. This work proceeded as directed by Major-General Coppinger, commanding Fourth Army Corps. The work of arming and equipping the third squadron of cavalry regiments, of which the two other squadrons had gone to Cuba, and the fifth regiment of cavalry and recruits for infantry regiments was continued.

The arming, equipping, and supplying with ammunition of Schwan's brigade, comprising the Eleventh and Nineteenth Infantry, which went to Porto Rico, was completed, and later the same work was performed for the Fifth United States Infantry, which went to Santiago. Caliber .45 rifle ball cartridges were also supplied to Porto Rico.

GATLING GUNS.

Four Gatling guns, caliber .30, were issued to Lieut. J. H. Parker, Thirteenth United States Infantry, and from reports these guns did excellent service in the fighting around Santiago. Eight of the same guns were issued to Schwan's brigade and two to the Fifth United States Infantry. For these guns extra supplies of caliber .30 cartridges were issued.

TRANSPORTATION.

Along toward the end of May the large number of troops and amount of supplies forwarded to Tampa led to a temporary blockade on the railroads. Determined efforts were made to get ordnance and ordnance stores from the cars. Telegrams were sent tracing and rushing forward the ammunition and equipment supply, and a letter was written to Headquarters of the Army requesting that the railroads be directed to give the ammunition supply the preference or right of way in forwarding Government shipments. Later, fast freight or special fast freight arrangements and express service for minor shipments gave more satisfactory results. The expense bills of incoming freight at the two railroad freight offices, and the arriving freight trains were watched by a depot employee who had had considerable experience in the railroad freight departments. Upon

arrival, arrangements were made with the depot quartermaster to have the stores unloaded directly into the storehouse with as little delay as possible under the circumstances.

CUBAN EXPEDITIONS.

A number of expeditions to Cuba were supplied with arms, ammunition, and equipments. The depot was able, owing to the large quantities of supplies sent, to meet promptly these large demands.

WORK OF DEPOT.

The work of depot can be best judged by its results. There were issued about—

Magazine rifles	4, 099
Magazine carbines	3, 000
Springfield rifles	32, 000
Revolvers, caliber .38	3, 000
Revolvers, caliber .45	1, 000
Rifle ball cartridges, caliber .45	17, 000, 000
Rifle ball cartridges, caliber .30	10, 000, 000

The work related to the Fourth, Fifth, and partly to the Seventh Army Corps, to the light artillery brigade, to the siege artillery train, and to the different signal and hospital corps companies.

Number of receipts	531
Number of issues	1, 004
Number of cars received	677
Tons of freight (estimated)	12, 000
Letters received	2, 155
Letters sent (about)	2, 000
Telegrams sent	516

EMPLOYEES.

E. A. Shepherd, formerly clerk at the Omaha ordnance depot and headquarters Department of the Platte; H. Bindewald, formerly storekeeper at the Fort Abraham Lincoln ordnance depot, and K. Birkenmeyer, formerly of Rock Island Arsenal, and Ord. Sergts. W. H. Loveland, E. McCarty, F. Bryant, United States Army, deserve special mention for their faithful, efficient, and valuable services.

In conclusion, the depot has been fortunate in having no accidents, when the large amount of powder and ammunition of all kinds received and issued is considered. Particular care was taken in stowing ammunition on transports where it would be safe from injury and from fire.

Very respectfully,

JNO. T. THOMPSON,

Captain, Ordnance Department, U. S. A.

The CHIEF OF ORDNANCE, U. S. ARMY,

Washington, D. C.

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